U-matic SP

VIDEO CASSETTE RECORDER

VO-9800P

SONY®

SERVICE MANUAL

SPECIFICATIONS

System

Recording system	Rotary 2-head helical scan Luminance: FM recording Color signal: converted subcarrier direct recording
Video signal system	CCIR standards, PAL color

Video

Inputs	VIDEO IN (BNC type) × 2 1.0 Vp-p±0.3 Vp-p, 75 ohms, unbalanced, sync negative DUB IN (7-pin) ×1
Outputs	VIDEO OUT (BNC type) × 1 1.0 Vp-p±0.2 Vp-p, 75 ohms, unbalanced, sync negative TV (8-pin) × 1 DUB OUT (7-pin) × 1 MONITOR VIDEO (BNC type) × 1
Horizontal resolution	SP mode recording: 300 lines (both B/W and color) High-band format recording: 260 lines (both B/W and color)
S/N	SP mode Color: more than 46 dB Luminance (Y): more than 48 dB High-band format More than 46 dB (color)
Sync signal input	SYNC IN (BNC type) × 1 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	(BNC type) × 1 0.5 (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
Recording level control	Automatic and manual

Audio

Input	AUDIO LINE IN CH-1/L, CH-2/R (XLR 3-pin female) × 1 each +4 dB, 10 k ohms, balanced MICROPHONES CH-1/L, CH-2/R (phone jack) × 1 each –60 dB, 3 k ohms, unbalanced
Outputs	AUDIO LINE OUT CH-1/L, CH-2/R (XLR 3-pin male) × 1 each +4 dBm (at 600 ohm load), balanced MONITOR AUDIO (phono jack) × 1 –5 dB (at 47 k ohm load) TV (8 pin) × 1 HEADPHONES (stereo phone jack) For 8-ohm headphones Level adjustable (from –26 to –46 dB)
S/N	With Dolby NR off 52 dB (KSP, KSP-S tapes) 50 dB (KCA, KCS tapes) (both channels 1 and 2 at 3% distortion)
Frequency response	50 to 15,000 Hz ±3 dB (both audio channels 1 and 2 with Dolby NR off)
Recording level control	Manual or limiter selectable

Time code

Input	TIME CODE IN (BNC type) × 1 0 dB ±6 dB, 10 k ohms, unbalanced (0 dB=1.55 Vp-p)
Output	TIME CODE OUT (BNC type) × 1 0 dB ±3 dB, low impedance, unbalanced

Other functions

Memory backup of mark in operation	3 years from shipment
Pause	A still picture is obtained with long pause function
Search	Still, $^1/_{30}$ to 8 times normal speed in both forward and reverse directions
Tracking control	Possible
Skew control	Possible
Sync system	Automatic switching between internal and external
Dropout compensator	Built-in

Tape transport

Tape speed	95.3 mm/sec.
Recording and playback time	Approx. 60 minutes (with KSP-60)
Fast forward and rewind time	Within 4 minutes (with KSP-60)
Wow and flutter	Less than ±0.23% p-p (DIN)
Tape compatibility	U-matic video cassette tapes
Usable tapes	KSP, KSP-S, KCA-BRS, KCS-BRS, KCA-XBR, KCS-XBR type

General

Power requirements	220 – 240 V AC, 50/60 Hz
Operating voltage	99 – 264 V AC
Power consumption	90 W (with the BKU-704, BKU-703 and RM-440)
Operating position	Horizontal (up to 20 degrees)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	426 × 238 × 513 mm (w/h/d) (16 7/8 × 9 3/8 × 20 1/4 inches) including projecting parts and controls
Weight	Approx. 21.4 kg (47 lb 3 oz)
Supplied accessories	AC power cord (1) Operating instructions (1)

Design and specifications are subject to change without notice.

Recommended video equipment and accessories

Editing Control Unit RM-450CE, RM-440 (when the BKU-703 installed)
Color Video Monitor Sony CVM and PVM series
Color Video Camera Sony DXC series
Time code reader BKU-704
33P editing interface BKU-703
Remote Control Unit RM-500, RM-580 (when the BKU-703 installed)
Cleaning Cassette KCS-1CL
Remote Control Cable RCC-5G (9-pin), RCC-5F (33-pin)
Dubbing Cable VDC-5 (5 m)
Monitor Connecting Cable VMC-3P (3 m), VMC-5P (5 m), VMC-10P (10 m)
Multi Remote Control Unit RM-555 (when the BKU-703 installed)
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Rack mount kit RMM-501

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

High-quality picture with a new recording/playback system

Recording and playback using the newly developed SP (Superior Performance) system and SP tapes specially designed for the SP system, provide clearer and sharper pictures than before.

Two recording modes and three playback modes

The VO-9800P is capable of recording in the SP and high-band modes, and of playing back in the SP, high-band and low-band modes.

High-quality picture

Capstan servo, framing servo, ϕ^2 servo loop circuit are incorporated in the VO-9800P, which assures a high-quality playback picture required for editing.
When an RM-450CE automatic editing control unit and a VTR such as a VO-9800P are used, an automatic electronic editing of high-quality will be possible.

Hi-Fi sound

Dolby NR C type noise reduction system permits high sound quality with reduced noise. The signal-to-noise ratio of 70 dB can be obtained (KSP or KSP-S tape) using the Dolby noise reduction system.
Cannon-3 pin connectors usually used for professional audio equipment are employed for the audio inputs and outputs.

Search operation

A search dial with the shuttle and jog functions is furnished. Playgack pictures can be viewed at various speeds from 1/30 times to 8 times normal speed as well as in a still mode in shuttle mode. In jog mode, playback pictures from still to ±1 time normal speed can be viewed.
As the playback can be performed in both forward and reverse directions, any desired scene can be easily found.

LED time counter

The time counter reads out the CTL signals recorded on a tape and the LEDs indicate the tape running time in hours, minutes, seconds and frames. These are useful to check the recording time of a material and the remaining time of a tape.
When the BKU-704 time code reader (optional) is installed in the VO-9800P, the time code recorded on the tape is read and displayed.

Connection of a time base corrector

The best possible playback picture will be obtained by connecting a time base corrector.

Memory function using MARK IN button

A particular point on a tape can be memorized by pressing the MARK IN button and can be searched for easily afterward.

Remote control

The unit is equipped with a 9-pin remote control connector. When the equipment which has a 9-pin remote connector such as an RM-450CE editing control unit, is connected here, the VO-9800P can be remotely controlled with this unit.
When a BKU-703 33-pin editing interface (optional) is installed in the VO-9800P, it can be remotely controlled by the equipment with a 33-pin remote connector such as an RM-440.

Time code recording and playback

The time code input to the TIME CODE IN connector can be recorded. Sony prepares an optional board for time code operation such as a BKU-704 time code reader. When the board is installed in the VO-9800P, displaying the time code data will be possible.

Dial menu operation

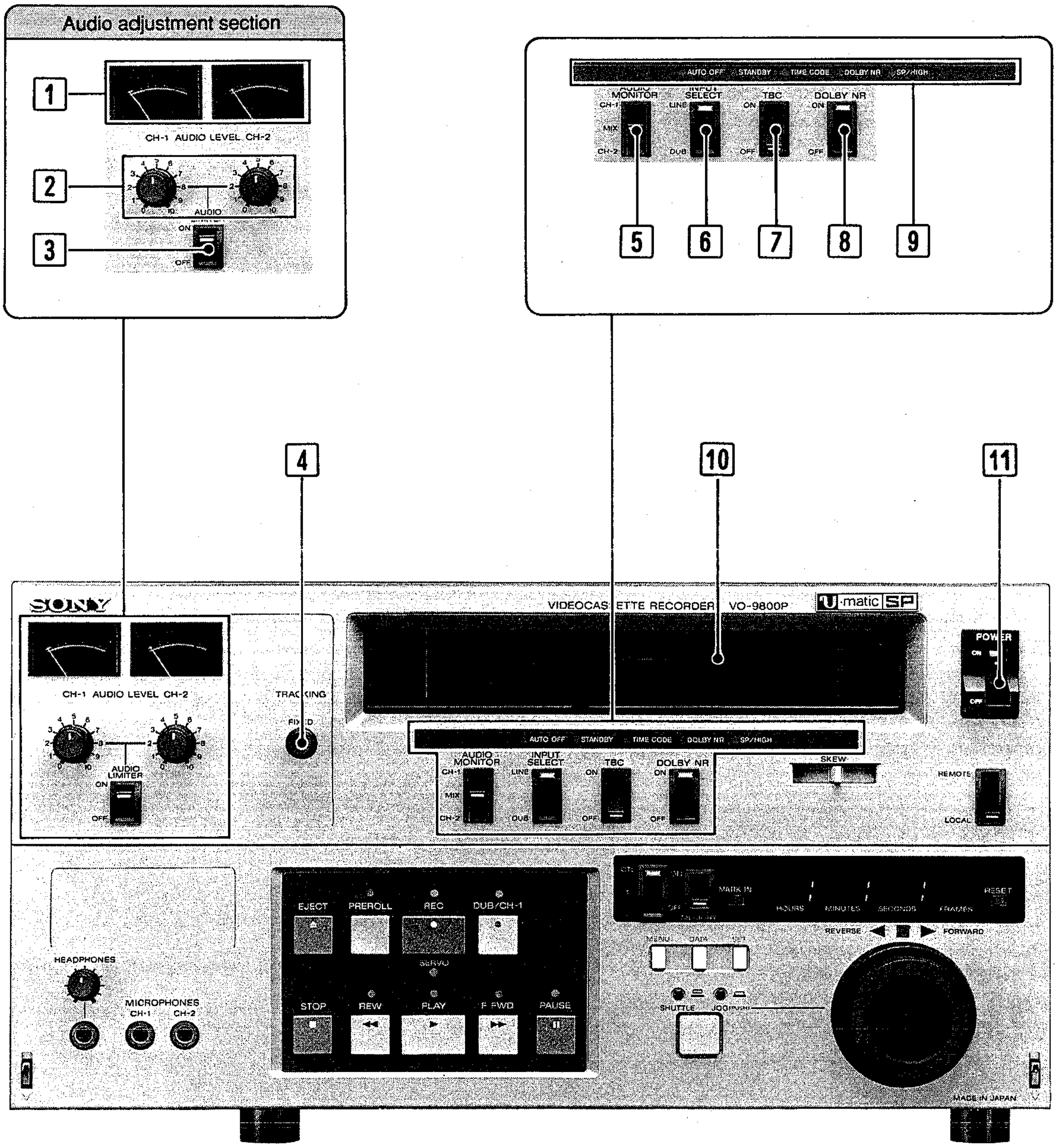
With the search dial, you can change the setting value for tape transportation.

Dubbing connectors

Connectors for duplicating video signals are included.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

FRONT PANEL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STANDBY
TIME CODE
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SP/HIGH
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CH-2
INPUT SELECT
LINE
DUB
TBC
DOLBY NR
SONY
VIDEOCASSETTE RECORDER VO-9800P
U-matic SP
TRACKING
FIXED
POWER
SKEW
REMOTE
LOCAL
EJECT
PREROLL
REC
DUB/CH-1
SERVO
STOP
REW
PLAY
F FWD
PAUSE
HEADPHONES
MICROPHONES
MARK IN
HOURS
MINUTES
SECONDS
FRAMES
RESET
REVERSE
FORWARD
MENU
DATA
SET
SHUTTLE
JOG
MADE IN JAPAN

1 Audio level meters

Audio recording level is shown in recording and audio playback level in playback.

2 AUDIO LEVEL controls

3 AUDIO LIMITER switch

ON	The audio recording limiter circuit is activated to minimize sudden surges of input signals and perform recording with low sound distortion. Microphone recordings shall be performed with this setting.
OFF	The limiter circuit is deactivated, enabling a manual recording level adjustment.

4 TRACKING control

Normally set this control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the best possible picture is obtained.

- Do not move this control from the center FIXED position while recording.

5 AUDIO MONITOR switch

Select the sound to be monitored through headphones or a speaker of a video monitor.

6 INPUT SELECT switch

This switch selects the signal to be recorded.

LINE	To record the signal from the VIDEO IN connector.
DUB	To record the signal from the DUB IN connector.

7 TBC (Time base corrector) switch

ON	For playback using a time base corrector.
OFF	For playback without using a time base corrector.

- If the switch is set to ON without connecting a time base corrector, the picture rolls in the search mode.

8 DOLBY NR (noise reduction) switch

When using an SP series tape for recording, set this switch to:

ON	For recording the sound with the Dolby NR system
OFF	For recording the sound without the Dolby NR system

- This switch has no effect in playback mode. The circuit is automatically switched by detecting whether the tape being played has been recorded with the Dolby NR system or not.
- The Dolby NR system is effective only for recording on SP series cassettes. This switch is not operative when recording on KCA and KCS cassettes.
- If the sound recorded with the Dolby NR system is played back on a conventional U-matic VTR (which is not equipped with the Dolby NR system), treble will be boosted.

9 Indicator section

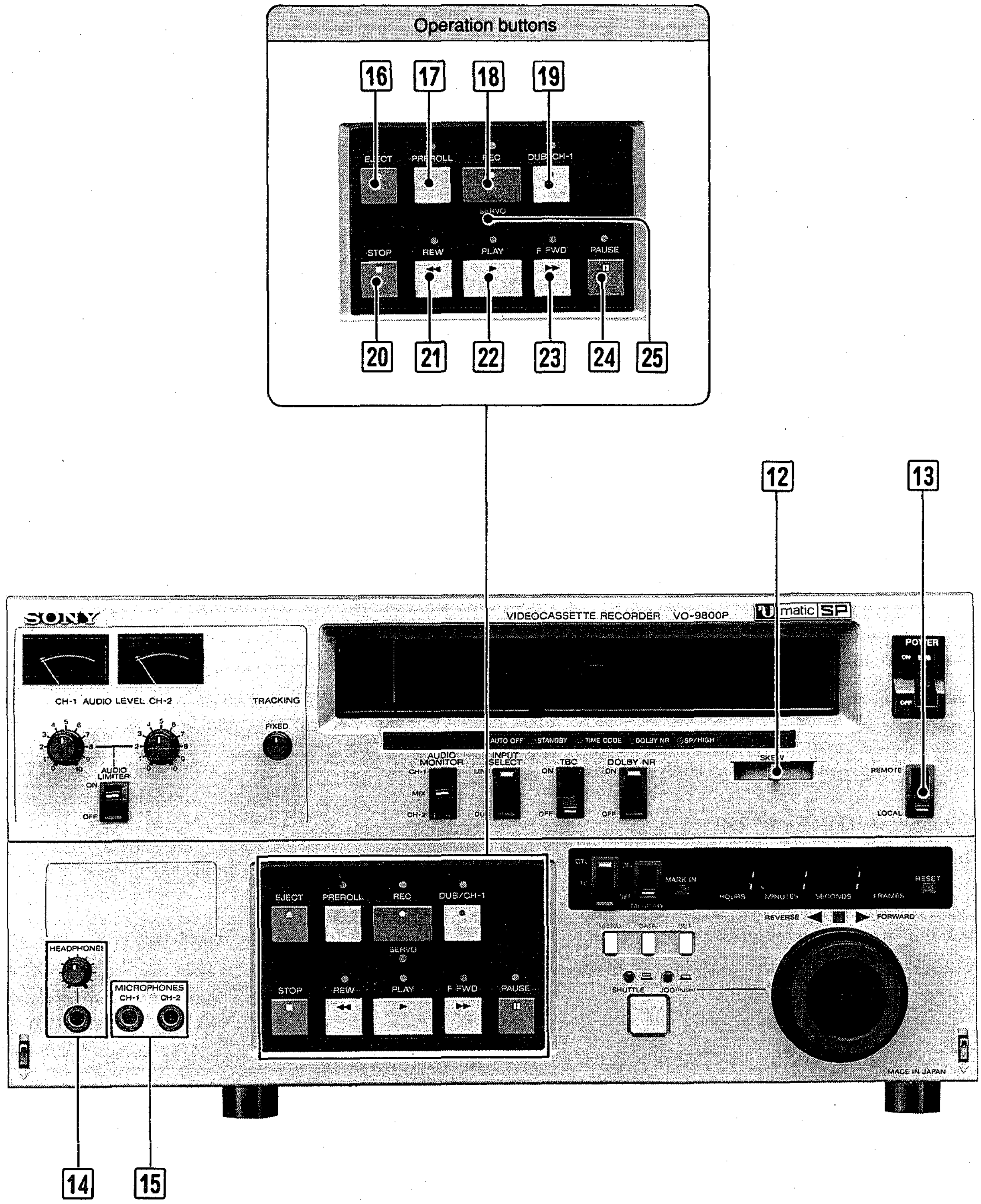
AUTO OFF	Lights at power-on when moisture is condensed inside the unit. While this indicator is lit, a cassette cannot be loaded.
STANDBY	Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.
TIME CODE	Lights when time code is being recorded, or when the tape on which time code is recorded is played back.
DOLBY NR*	In recording: Lights when an SP series cassette is inserted with the DOLBY NR switch set at ON. In playback: Lights when a tape recorded with the Dolby NR system is played back.
SP/HIGH**	In recording: Lights when an SP series cassette is loaded. In playback: Lights when a tape recorded in SP or high-band mode is played back.

* When the power is turned on with the DOLBY NR switch 8 set at ON, the DOLBY NR lamp lights up even if no cassette has been inserted.

** When the power is turned on, the SP/HIGH lamp lights up even if no cassette has been inserted.

10 Cassette compartment

11 POWER switch


Operation buttons
16
17
18
19
EJECT
PREROLL
REC
DUB/CH-1
SERVO
STOP
REW
PLAY
F FWD
PAUSE
20
21
22
23
24
25
12
13
SONY
VIDEOCASSETTE RECORDER VO-9800P
U matic SP
POWER
ON
OFF
CH-1 AUDIO LEVEL CH-2
TRACKING
FIXED
AUDIO LIMITER
ON
OFF
AUTO OFF
STANDBY
TIME CODE
DOLBY NR
SP/HIGH
AUDIO MONITOR
CH-1
MIX
CH-2
INPUT SELECT
TBC
ON
OFF
DOLBY NR
SKEW
REMOTE
LOCAL
MARK IN
HOURS
MINUTES
SECONDS
FRAMES
RESET
REVERSE
FORWARD
SHUTTLE
JOG
HEADPHONES
MICROPHONES
CH-1
CH-2
MADE IN JAPAN
14
15

12 **SKEW lever**
Normally set this lever at the center position.
When "hooking" distortion appears in the upper part of a playback picture, slide this lever to the right or left to obtain a normal picture.
- Do not move this lever while recording.

13 **REMOTE/LOCAL selector**
Use this selector to control this unit with the other equipment connected to the REMOTE 1(9P) connector on the rear panel.
The functions are controlled as follows:

REMOTE	Set to this position when you want this unit to be controlled by the unit connected to the REMOTE 1 (9P) connector (9-pin). With this selector set to REMOTE, none of the operation buttons for tape travel, except for the STOP and EJECT buttons, will function.
LOCAL	Set to this position to operate this unit alone.

14 **HEADPHONES connector (stereo phone jack), HEADPHONES level control**

15 **MICROPHONES CH-1 and CH-2 connectors (phone jacks)**

Operation buttons

16 **EJECT ⏏ button**
Press to eject the video cassette.

17 **PREROLL button and indicator**
Press this button in pause mode and the tape rewinds for 5 seconds and stops in pause mode.

18 **REC ● (record) button and indicator**
For recording, press this button simultaneously with the PLAY ▶ button.

19 **DUB/CH-1 ⊖ (audio dubbing) button/lamp**
For adding sound to a tape on which video signal has been previously recorded, press this button simultaneously with the PLAY ▶ button. The sound will be recorded on audio channel 1.

20 **STOP ■ button**
Press to stop the operation of the unit. The E-E mode picture can be seen on the monitor screen.

21 **REW ◀◀ (rewind) button and lamp**
Press to rewind the tape. The E-E mode picture can be seen on the monitor screen.

22 **PLAY ▶ button and lamp**
Press to play the tape back. Simultaneously pressing this button with the REC ● button sets the unit in the record mode: simultaneously pressing it with the DUB/CH-1 ⊖ button sets the unit in the audio dubbing mode.

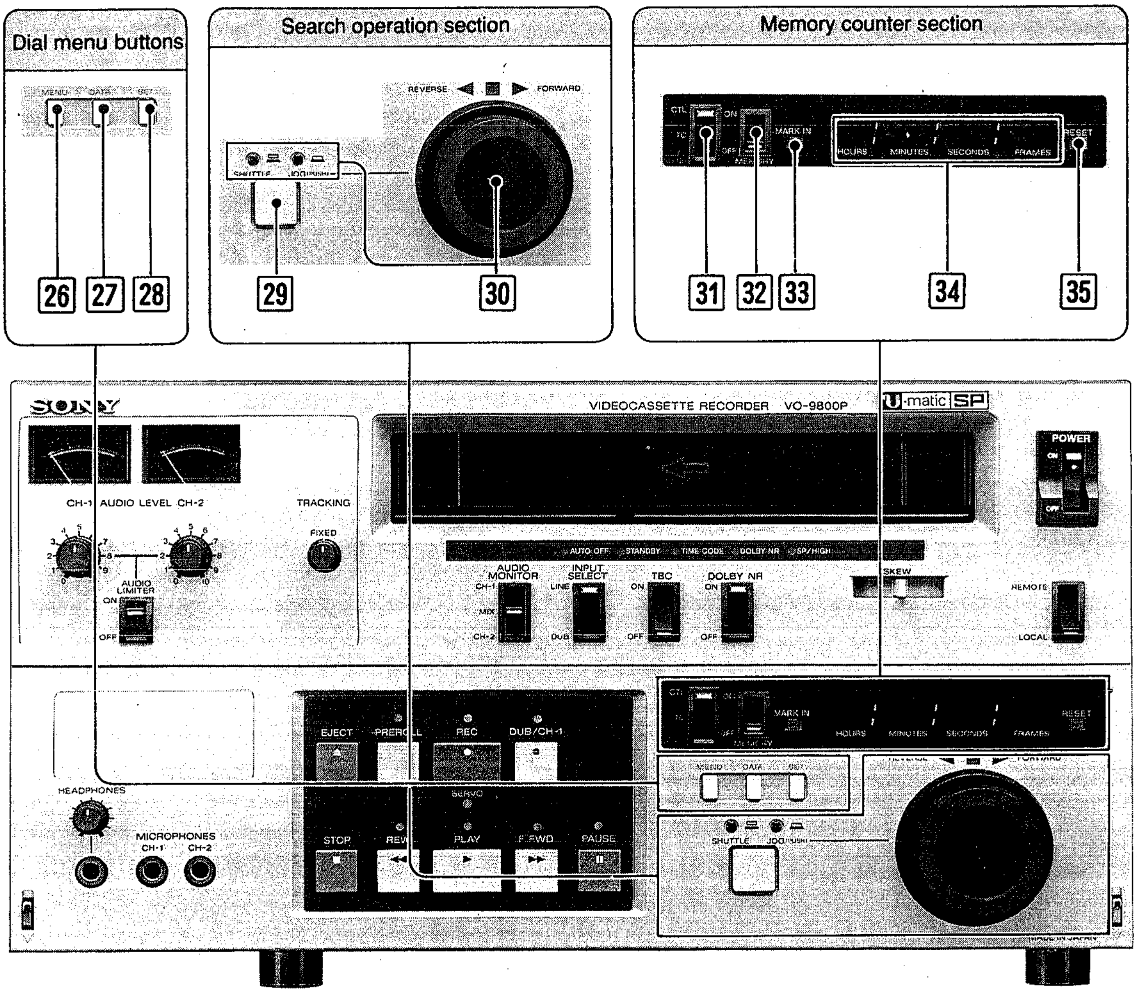
23 **F FWD ▶▶ (fast forward) button and lamp**
Press to advance the tape rapidly. The E-E mode picture can be seen on the monitor screen.

24 **PAUSE ❚❚ button and lamp**
Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY ▶, F FWD ▶▶, REW ◀◀ or search button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.

25 **SERVO lamp**
With the PLAY ▶ button pressed, normally the drum and capstan servo-mechanisms will start working properly. This lamp lights when the servo-mechanisms are locked in a reference signal.

Note

The SERVO lamp blinks if the servo-mechanisms are not locked in during editing.


Dial menu buttons
MENU
DATA
SET
26
27
28
Search operation section
REVERSE
FORWARD
SHUTTLE
JOG
29
30
Memory counter section
CTL
TC
ON
OFF
MEMORY
MARK IN
HOURS
MINUTES
SECONDS
FRAMES
RESET
31
32
33
34
35
SONY
VIDEOCASSETTE RECORDER VO-9800P
U-matic SP
POWER
CH-1 AUDIO LEVEL CH-2
TRACKING
FIXED
AUDIO LIMITER
AUTO OFF
STANDBY
TIME CODE
DOLBY NR
SP/HIGH
AUDIO MONITOR
INPUT SELECT
LINE
DUB
MIX
TBC
DOLBY NR
SKEW
REMOTE
LOCAL
EJECT
PREROLL
REC
DUB/CH-1
SERVO
STOP
REW
PLAY
F.FWD
PAUSE
HEADPHONES
MICROPHONES
CH-1
CH-2

Dial menu buttons

The dial menu buttons [26], [27] and [28] are used only when the CTL/TC/DIAL MENU selector [31] is set to DIAL MENU.

[26] **MENU button**
While pressing this button, turn the search dial [30] in jog mode to select the menu.

[27] **DATA button**
While pressing this button, turn the search dial [30] in jog mode to set the data.

[28] **SET button**
Press this button to settle the data set by the DATA [27] button.

Search operation section

[29] **Search button**
Press to put the unit in the search mode, and the search operation with the search dial in jog or shuttle mode will be possible.

[30] **Search dial and SHUTTLE/JOG lamps**
Functions as a search dial for quickly locating edit points or as a selector for the dial menu operation according to the setting of the CTL/TC/DIAL MENU selector [31].

Setting	Function
CTL or TC	Search for a scene
DIAL MENU	Dial menu operation

The details of the function are as follows:

Search for edit points

Set the CTL/TC/DIAL MENU selector [31] to CTL or TC, and press the search button [29]. The search dial can make the tape run in jog or shuttle mode. Push in to change from the shuttle mode to the jog mode and push it in again to change back. The corresponding lamp lights to show the current mode. Rotate the dial clockwise to run the tape forward (the ▶ FORWARD lamp lights), and counterclockwise to run the tape in reverse (the REVERSE ◀ lamp lights).
When the tape stops, the ■ lamp lights.

SHUTTLE	Set the dial to one of 16 positions to run the tape at a speed from 1/30 to 8 times normal speed. A still picture is obtained at the center detent position.
JOG	The dial turns freely. The tape runs at a speed from 0 to 1 times normal speed while the dial is rotated. When the dial is stopped, a still picture is obtained.

Dial menu operation

Set the CTL/TC/DIAL MENU selector to DIAL MENU. Rotate the dial while pressing the MENU button [26] or the DATA button [27] to set characters or numbers on the display.

Memory counter section

[31] **CTL/TC/DIAL MENU selector**

Selects what is displayed in the time counter display [34] as follows.

CTL	Displays time period of tape travel in hours, minutes, seconds and frames by counting CTL pulses.
TC	Displays time code
DIAL MENU	The unit goes into the dial menu operation mode and the dial menu will be displayed. In this mode, any other functions are deactivated.

Notes

- You can put the VO-9800P in the dial menu operation mode with the REMOTE/LOCAL selector [13] set to LOCAL, only when a cassette is not inserted or when the unit is in the stop mode.
- The time code data is displayed only when the BKU-704 time code reader is installed in the VO-9800P.

[32] **MEMORY switch**

When this switch is set to ON, the tape will automatically stop the point where the MARK IN button [33] was pressed in the rewind or search mode. The point where the tape stops may shift a little. If the MARK IN button has not been pressed, the tape will stop at the point where the time counter indicates "0:00:00:00" (when CTL is selected).

- During editing or when the REMOTE 1 (9P) connector is used, be sure to set this switch to OFF.

[33] **MARK IN button**

Press to memorize a particular point on the tape and the time indicator keeps indicating the memorized point while the button is pressed.
The memory function can be activated at any position of the MEMORY switch [32].

[34] **Time counter display**

Displays the item selected by the CTL/TC/DIAL MENU selector [31].

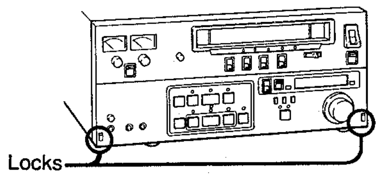
[35] **RESET button**

When the CTL signal is used to display the time period of the tape travel on the time counter display [34], press to reset to 0:00:00:00. The point memorized by the MARK IN button will be canceled.

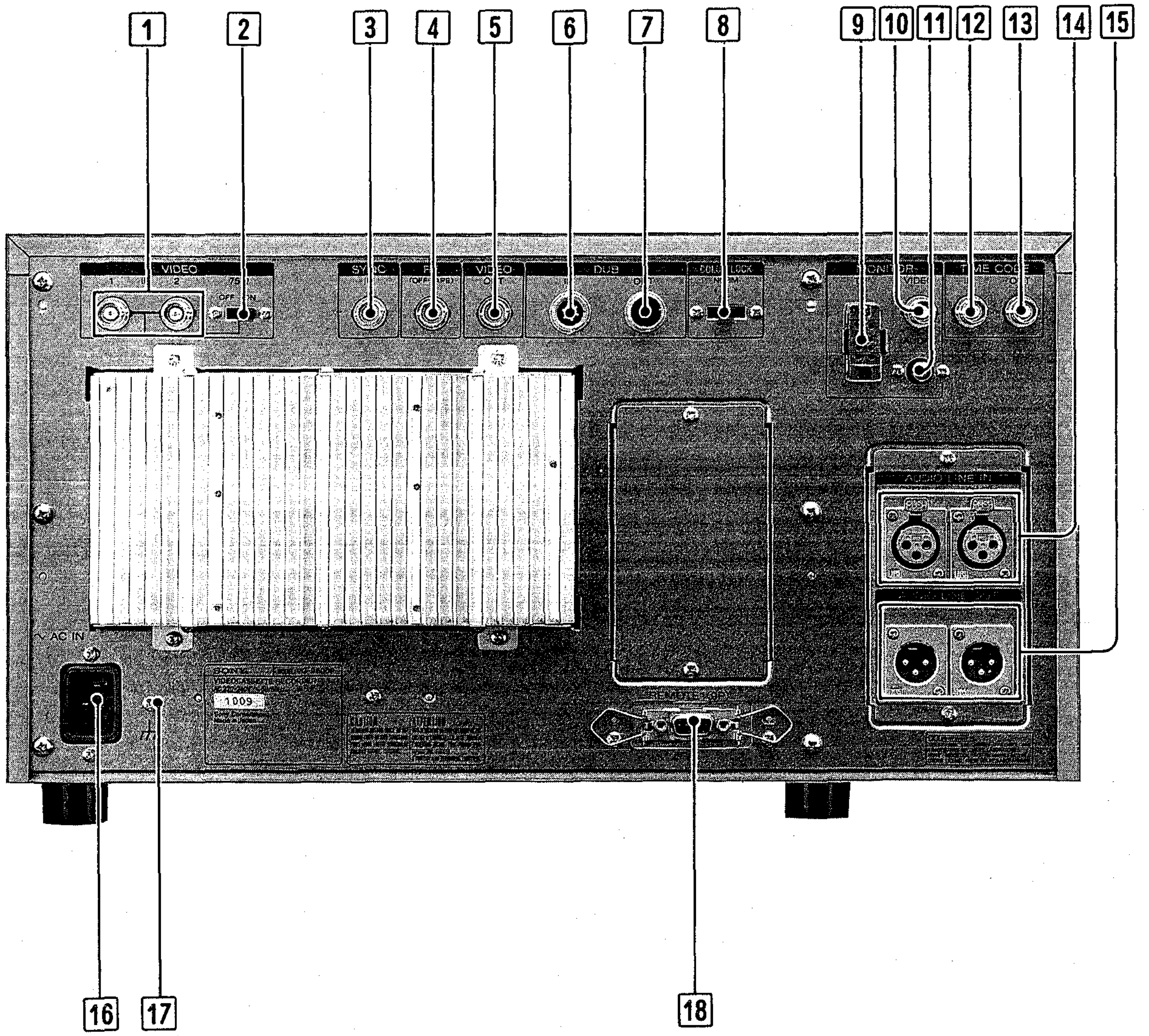
Control panel positioning

The lower half of the control panel can be tilted upwards by 30°, 60° or 90° for convenience.

1. Push down the locks on the both sides simultaneously so that the lower half of the front panel comes to the front.
2. Tilt the panel up and lock it at the desired angle of 30°, 60° or 90°. Be sure to check that both sides are locked firmly.



REAR PANEL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VIDEO
SYNC
VIDEO
DUB
COLOR LOCK
MONITOR
TIME CODE
AC IN
1009

[1] VIDEO IN (video input) connectors (BNC type)
Supply a composite video signal to one of these connectors.
For a bridging connection, use either one for input and the other for output. In this case, be sure to set the 75 ohm termination switch [2] to OFF and terminate the trunk line end instead.

[2] 75 ohm termination switch
Use to terminate the video signal supplied to the VIDEO IN connector [1].

ON	When one VIDEO IN connector is used for the incoming signal and the other is left open.
OFF	For a bridging connection (One VIDEO IN connector is used for the incoming signal but the other is used to send the incoming signal to another VTR.)

[3] SYNC IN (sync signal input) connector (BNC type)
Accepts an external sync signal to operate the unit in synchronization with an external device (time base corrector, etc.).

[4] RF (OFF TAPE) output connector (BNC type)
Supplies an FM signal to a time base corrector in playback.

[5] VIDEO OUT connector (BNC type)

[6] DUB IN (dubbing input) connector (7-pin)
Use to input the video signal to be dubbed from a U-matic VTR. Connect to the dub out connector of the U-matic VTR using the 7-pin dubbing cable (optional).

[7] DUB OUT (dubbing output) connector (7-pin)
Use to supply the video signal to be dubbed to a U-matic VTR. Connect to the dub in connector of the U-matic VTR using the 7-pin dubbing cable (optional).

[8] COLOR LOCK switch
As a rule, set to NORM (normal). If the playback picture has no color or if the hue is abnormal, set the switch to the position marked [●].

[9] TV (monitor) connector (8-pin connector)
Accepts a video monitor having an 8-pin VTR connector. Both the MONITOR VIDEO, and MONITOR AUDIO connections can be replaced with a single cable connection here. In playback, the channel selected by the AUDIO MONITOR switch will be heard through the speaker on the video monitor.

- The data of the dial menu is superimposed on the video signal and output.

[10] MONITOR VIDEO connector (BNC type)
This outputs the video signal for monitoring. Connect to the video input connector of a color monitor. Information superimposed on a picture in the dial menu operation mode will also be output.

[11] MONITOR AUDIO output connector (phono jack)
Supplies an audio signal selected by the AUDIO MONITOR switch on the front panel.

[12] TIME CODE IN connector (BNC type)
Accepts the time code supplied from an external time code generator or another VTR.
The time code supplied to this connector can be recorded.

[13] TIME CODE OUT connector (BNC type)
During playback, the time code recorded on the tape is played back and output from here. When the time code is supplied to the TIME CODE IN connector, the supplied time code is output during recording.

[14] AUDIO LINE IN CH-1/L and CH-2/R connectors (XLR 3-pin, female)

[15] AUDIO LINE OUT CH-1/L and CH-2/R connectors (XLR 3-pin, male)

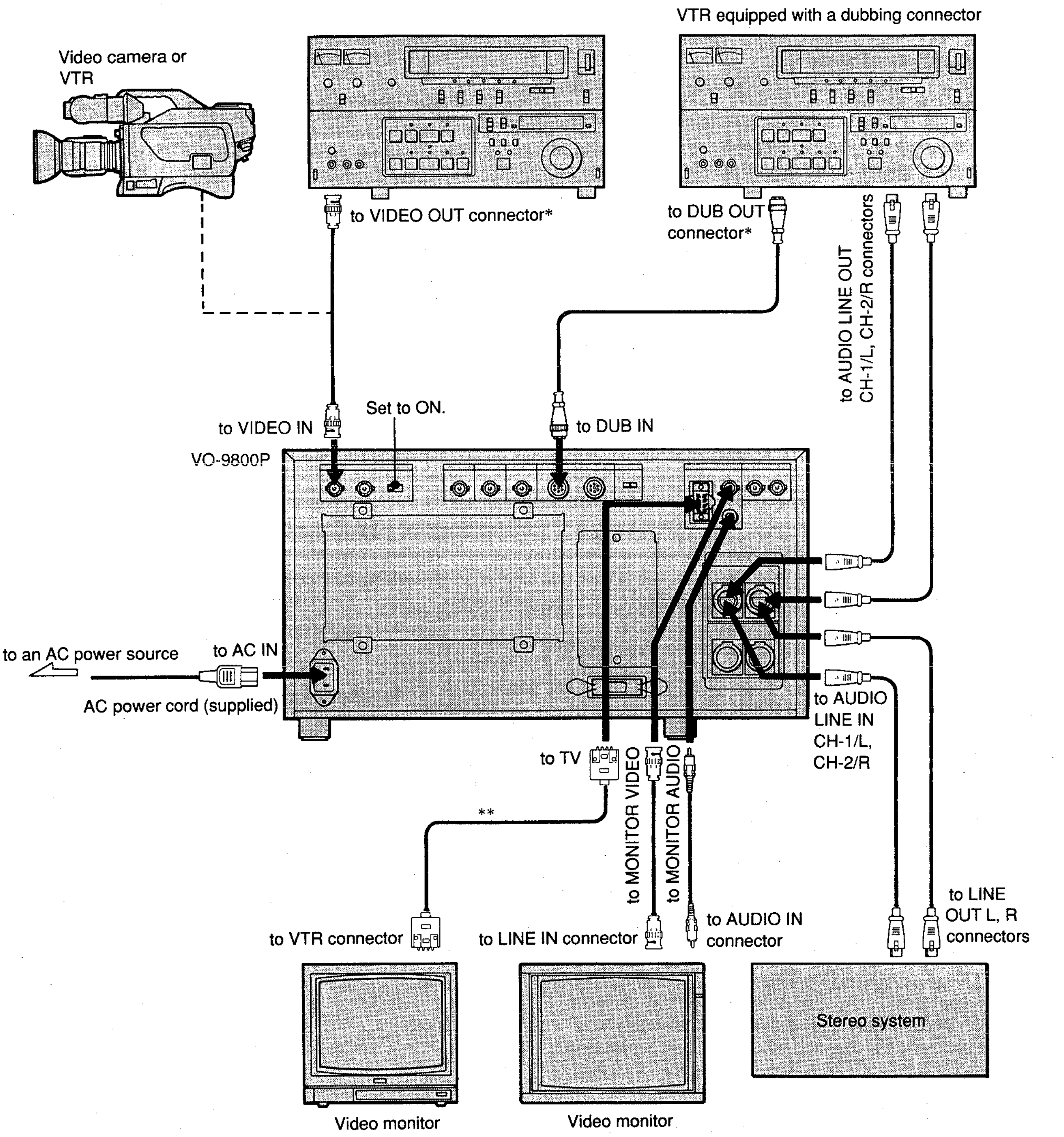
[16] AC IN (power inlet)
Plug in the supplied AC power cord to supply power to the VO-9800P.

[17] Ground terminal

[18] REMOTE 1 (9P) connector (9-pin)
Connect a Sony editing control unit such as an RM-450CE to perform editing.
Use the 9-pin remote control cable (optional) to make the connection.

1-3. CONNECTIONS

1-3-1. Connections for Recording


VTR equipped with a dubbing connector
Video camera or VTR
to VIDEO OUT connector*
to DUB OUT connector*
to AUDIO LINE OUT CH-1/L, CH-2/R connectors
Set to ON.
to VIDEO IN
to DUB IN
VO-9800P
to an AC power source
to AC IN
AC power cord (supplied)
to AUDIO LINE IN CH-1/L, CH-2/R
to TV
to MONITOR VIDEO
to MONITOR AUDIO
**
to VTR connector
to LINE IN connector
to AUDIO IN connector
to LINE OUT L, R connectors
Stereo system
Video monitor
Video monitor

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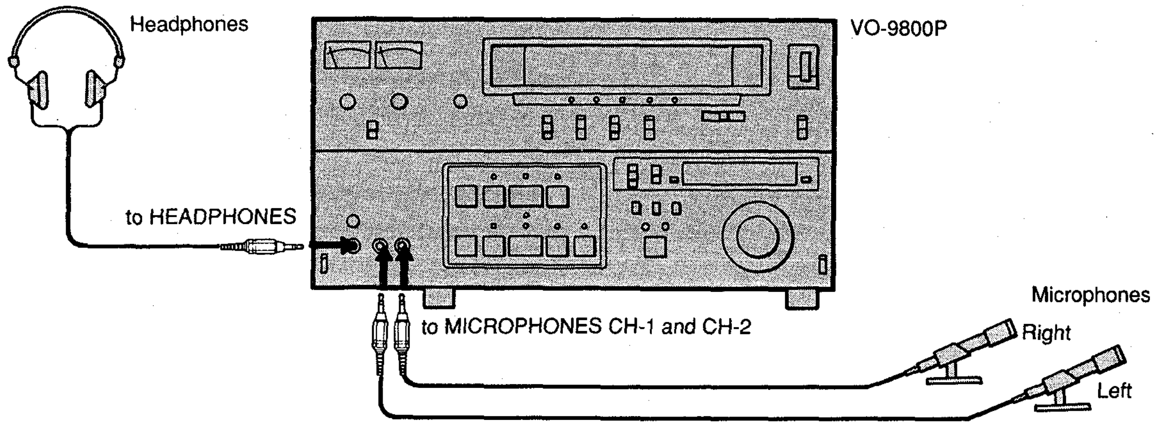
* When the VTR is not equipped with the DUB connector, connect it to the VIDEO IN connector on the VO-9800P using a cable with BNC connectors.

** Use a VMC-3P, VMC-5P or VMC-10P monitor connecting cable.

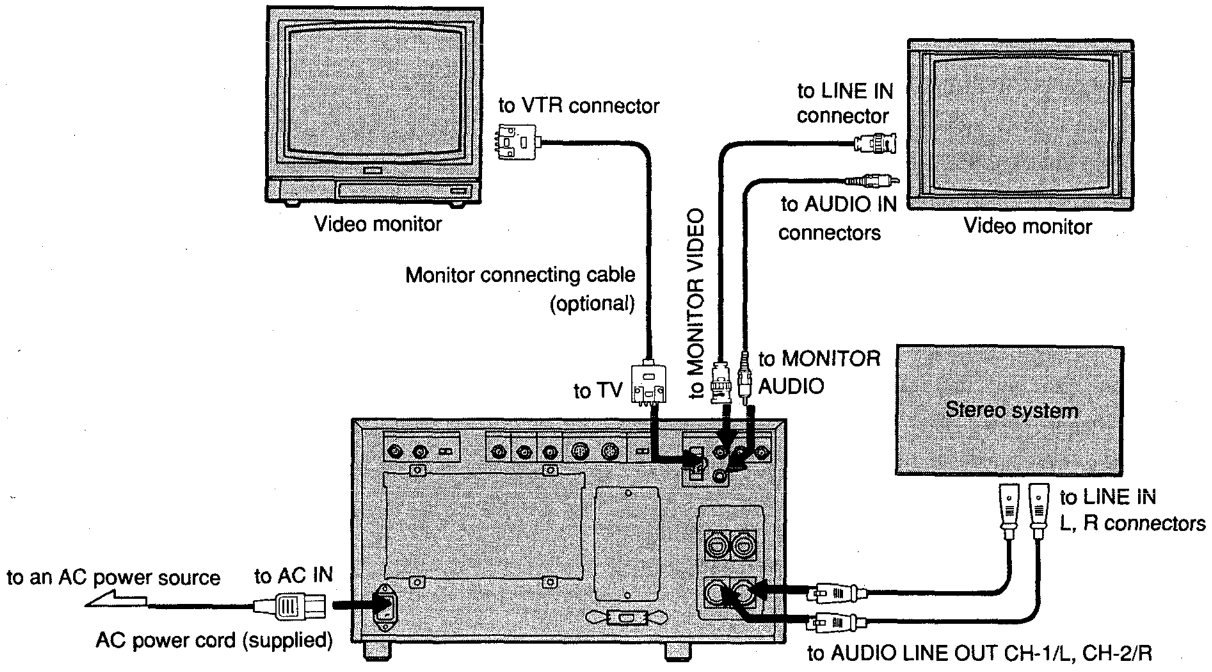
1-3-2. Connections for Headphones and Microphones


Headphones
VO-9800P
to HEADPHONES
Microphones
Right
to MICROPHONES CH-1 and CH-2
Left

Note

When the microphones are connected, the signals connected to the AUDIO LINE IN connectors on the rear panel are automatically cut off, and signals from the microphones will be recorded.

1-3-3. Connections for Playback


to VTR connector
to LINE IN connector
Video monitor
to AUDIO IN connectors
Video monitor
Monitor connecting cable (optional)
to MONITOR VIDEO
to MONITOR AUDIO
to TV
Stereo system
to LINE IN L, R connectors
to an AC power source
to AC IN
AC power cord (supplied)
to AUDIO LINE OUT CH-1/L, CH-2/R

1-4. OPERATION

FOR RECORDING

When the recording is finished
Press the STOP button.

If the recording is done to the end of the tape
The tape automatically rewinds to the beginning, and stops.

. Note on recording
Do not move the SKEW lever while recording.

Regarding a cassette
Be sure to check that the red button is in place on the cassette before inserting it in the VTR. If the cassette without the button is inserted, the recording mode cannot be obtaines.

To stop the tape momentarily
Press the PAUSE button.
To resume recording, press the PAUSE button again.

Long pause mode
If the pause mode continues for 8 minutes, the tape around the head drum automatically slackens to protect the video head and the tape. This is called "long pause mode".
To release the long pause mode, press the PAUSE button.

E-to-E (Electronics-to-Electronics) mode
An input video signal which has passed through the amplifier in the recorder is displayed on the monitor screen. This is the E-to-E mode picture, permitting the input signal to be checked on the monitor screen.
The unit automatically enters the E-to-E mode when it is set in the stop, F FWD or REW mode.

FOR PLAYBACK

To stop playback
Press the STOP button.

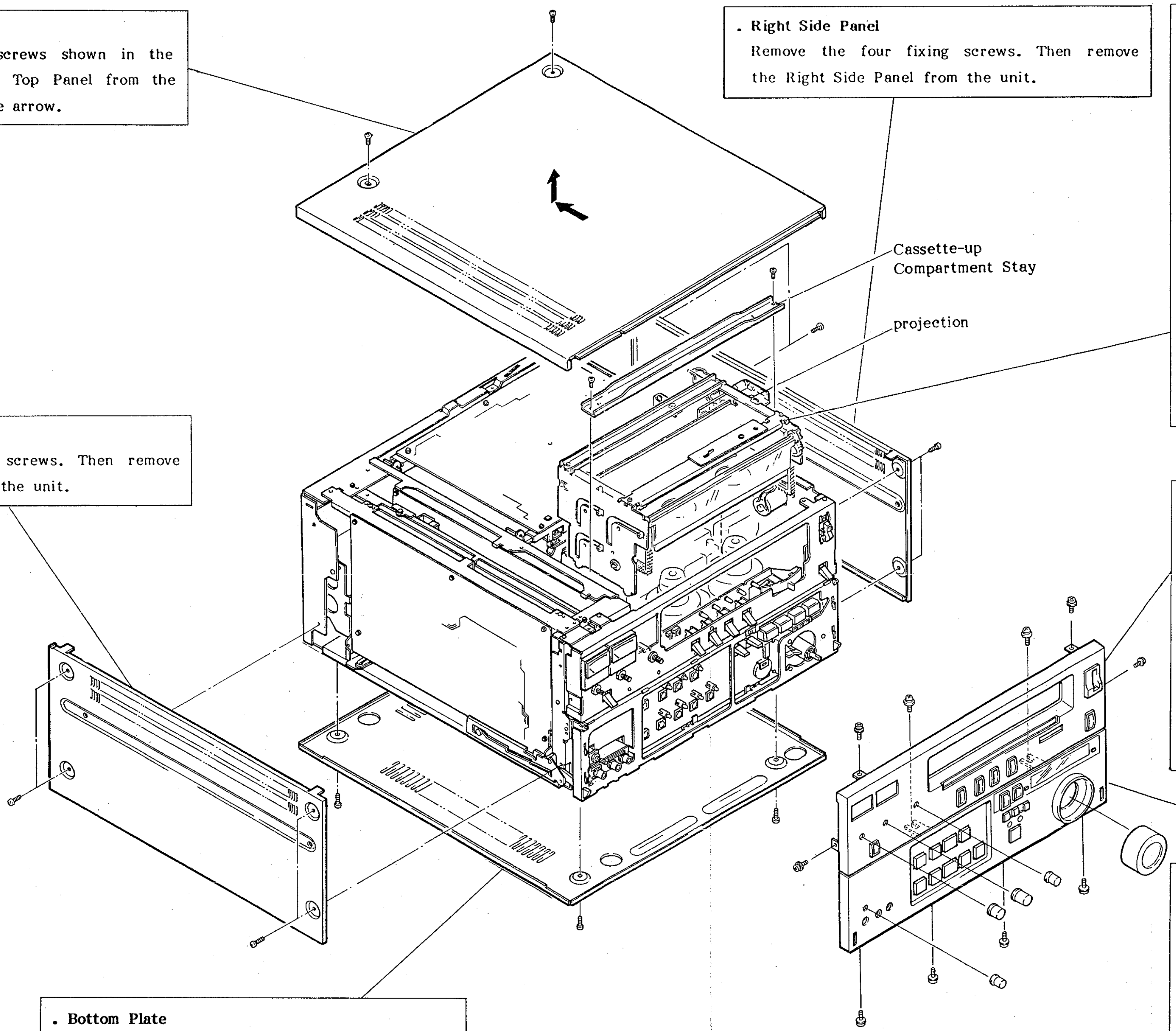
When the tape is played back to the end
It automatically rewinds to the beginning and then stops.

To stop the tape momentarily
Press the PAUSE button. The tape stops and a still picture appears on the monitor screen. The still picture is a clear one having no guard-band noise.
To resume playback, press the PAUSE button again or press the PLAY button.
. If the pause mode continues for 8 minutes, the recorder automatically enters the long pause mode, and the still picture will disappear.

Note on the MODE SELECT switch
If the MODE SELECT switch is set to TBC without connecting a time base corrector, the playback picture rolls.

SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF CABINET



. Top Panel
Remove the two fixing screws shown in the figure. Then remove the Top Panel from the unit in the direction of the arrow.

. Left Side Panel
Remove the four fixing screws. Then remove the Left Side Panel from the unit.

. Bottom Plate
Remove the four fixing screws. Then remove the Bottom Plate from the unit.

. Right Side Panel
Remove the four fixing screws. Then remove the Right Side Panel from the unit.

. Cassette-up Compartment

(1) Remove the Top Panel.
(2) Remove the two fixing screws and then remove the Cassette-up Compartment Stay.
(3) Disconnect CN1 on the CC-36 board.
(4) Lift the Cassette-up Compartment Block slowly.
(5) When installing the Cassette-up Compartment, insert the projections of the Cassette-up Compartment Block into the holes of the chassis.
(6) Connect CN1 on the CC-36 board.
(7) Insert the projections of the Cassette-up Compartment Block into the holes of the Cassette-up Compartment Stay (as shown in the figure) and then fix the screws.

. Front Panel

(1) Remove the Top Panel, the Left and Right Side Panels, and the Cassette-up Compartment Block.
(2) Remove the three knobs from the unit.
(3) Remove the four fixing screws (two screws on the top, and a screw on each side).
(4) Remove the two fixing screws of the lower portion of the Front Panel from the inside of the unit. Then remove the Front Panel from the unit.

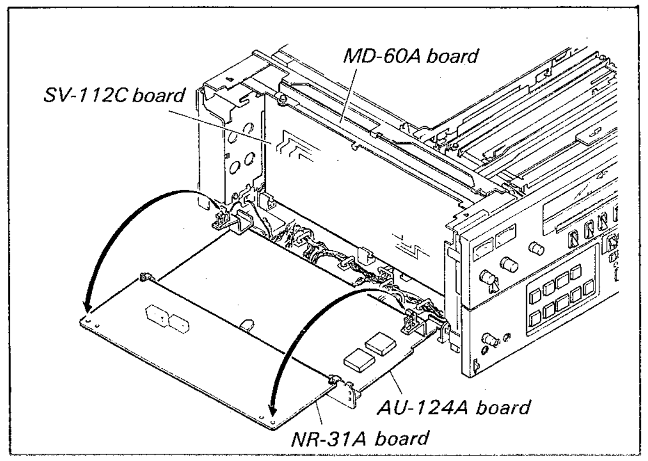
. Key Panel

(1) Remove the dial cover, and remove a knob from the unit.
(2) Push down the right and left knobs on the front of the Key Panel and open the Panel at a 90 degree angle.
(3) Remove the four fixing screws. Then remove the Key Panel from the unit.

2-2. HOW TO SERVICE THE PRINTED CIRCUIT BOARD

2-2-1. AU-124A, NR-31A, SV-112C and MD-60A Boards

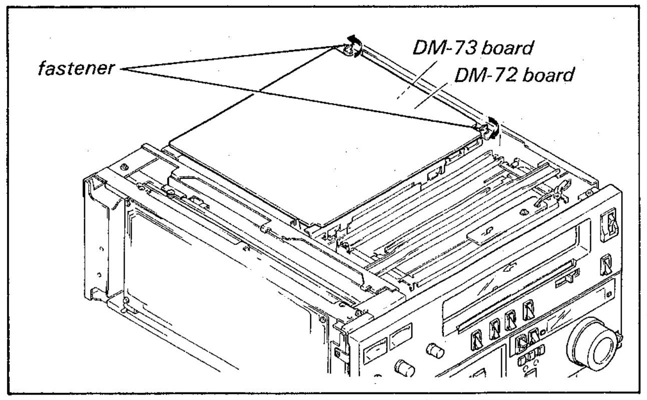
Open the AU-124A and NR-31A boards to repair as shown in the figure.


MD-60A board
SV-112C board
AU-124A board
NR-31A board

2-2-2. DM-72 and DM-73 Boards

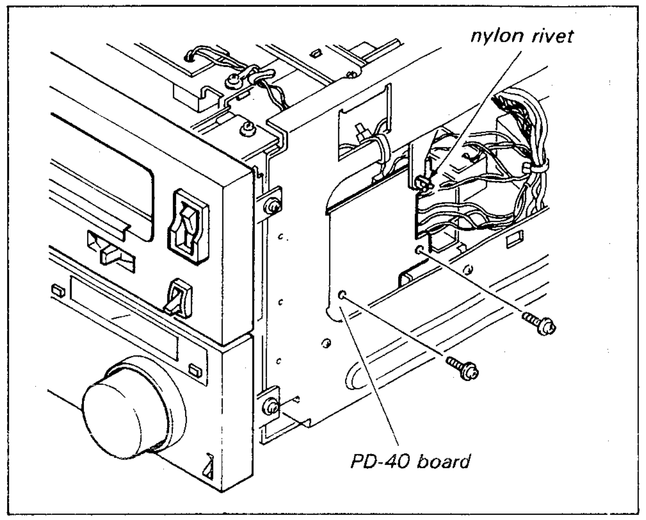
Turning the fastener to the direction of the arrow, the DM-72 board can be opened. Then, the component side of the DM-72 board can be repaired.

After opening the DM-72 board, the DM-73 board can be opened.


fastener
DM-73 board
DM-72 board

2-2-3. PD-40 Board

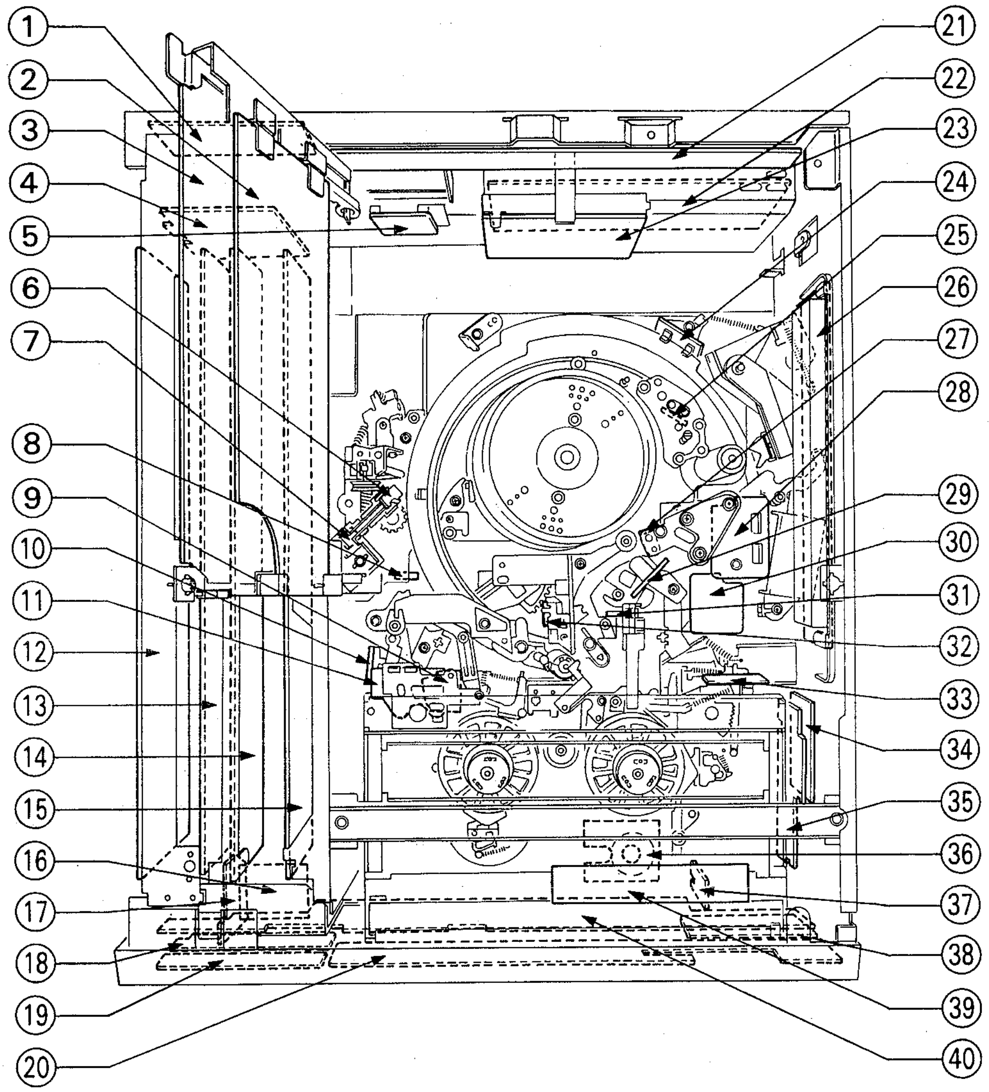
Remove the nylon rivet from the inside of the unit and remove two screws, and then remove the PD-40 board.


nylon rivet
PD-40 board

2-3. MAIN PARTS LOCATION

2-3-1. Location of the Printed Circuit Board

[TOP VIEW]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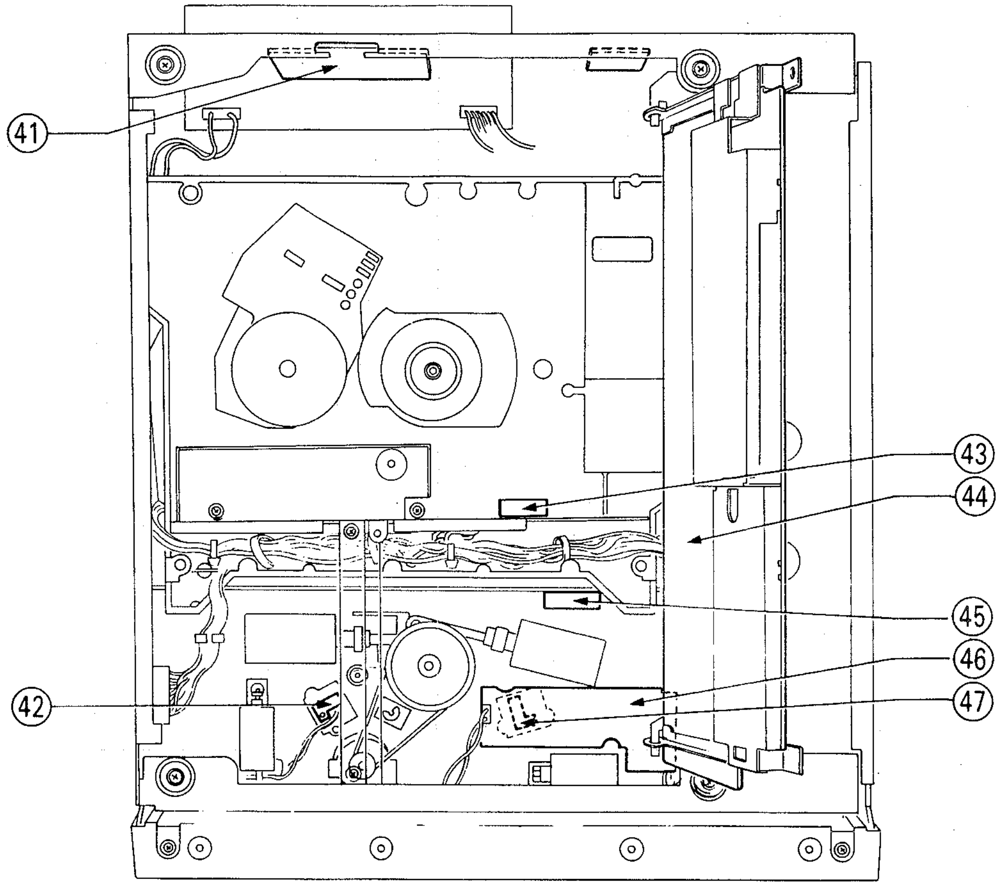
1	CP-136 Board
2	DM-73 Board
3	DM-72 Board
4	AA-16 Board
5	RM-66 Board
6	PH-5 Board
7	PH-5 Board
8	LM-13 Board
9	SE-46 Board
10	PTC-34 Board
11	PTC-30 Board
12	AU-124A Board
13	NR-31A Board
14	SV-112C Board
15	MD-60A Board
16	MC-28 Board
17	HP-42 Board
18	VR-80 Board
19	MT-53 Board
20	SW-315A Board
21	DUS-271 Board
22	Switching Regulator (UR-02)
23	DC-31P Board
24	PTC-33 Board
25	DUS-92 Board
26	RP-40C Board
27	HN-84 Board
28	DUS-147 Board
29	EC-32 Board
30	HN-130 Board
31	PH-5 Board
32	PH-5 Board
33	CC-37 Board
34	PD-40 Board
35	CC-36 Board
36	RM-39 Board
37	PTC-32 Board
38	DP-62 Board
39	LP-41 Board
40	KY-159A Board

[BOTTOM VIEW]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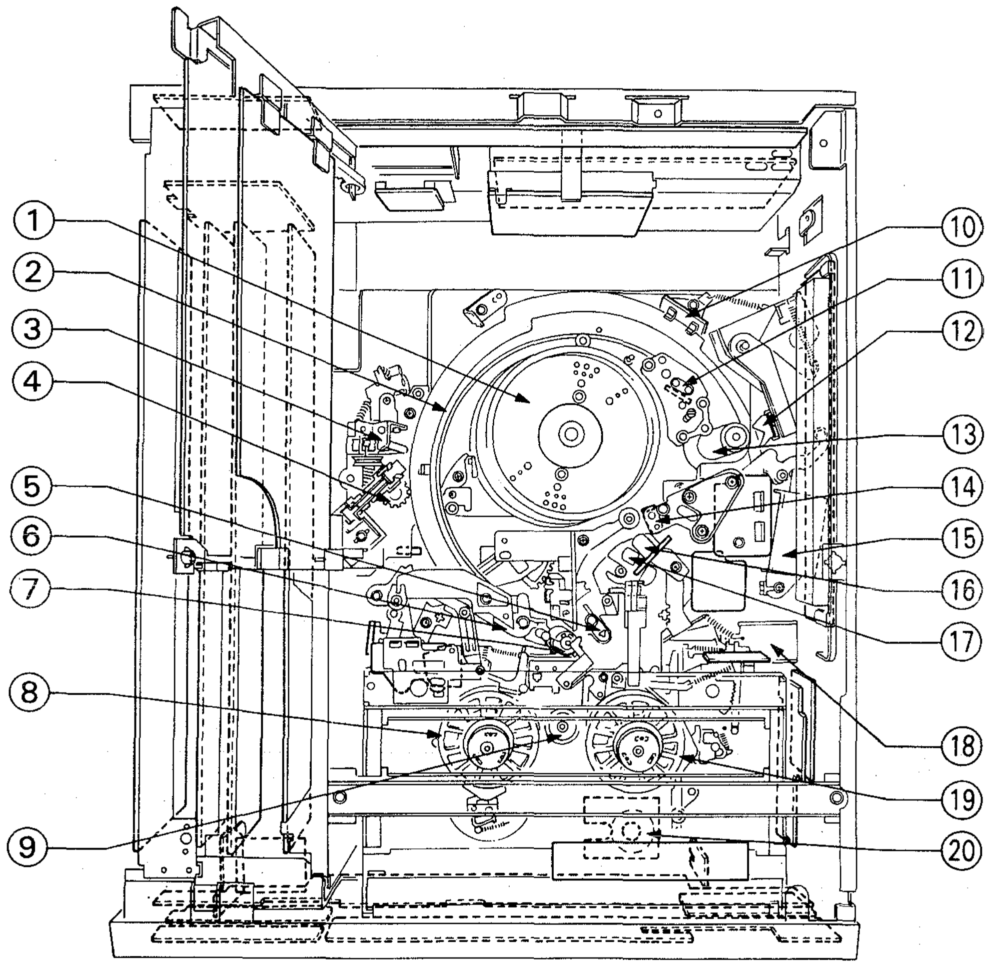
41	AC-98 Board
42	PTC-35 Board
43	PT-9 Board
44	SY-141C Board
45	TG-22 Board
46	PD-41 Board
47	PTC-35 Board

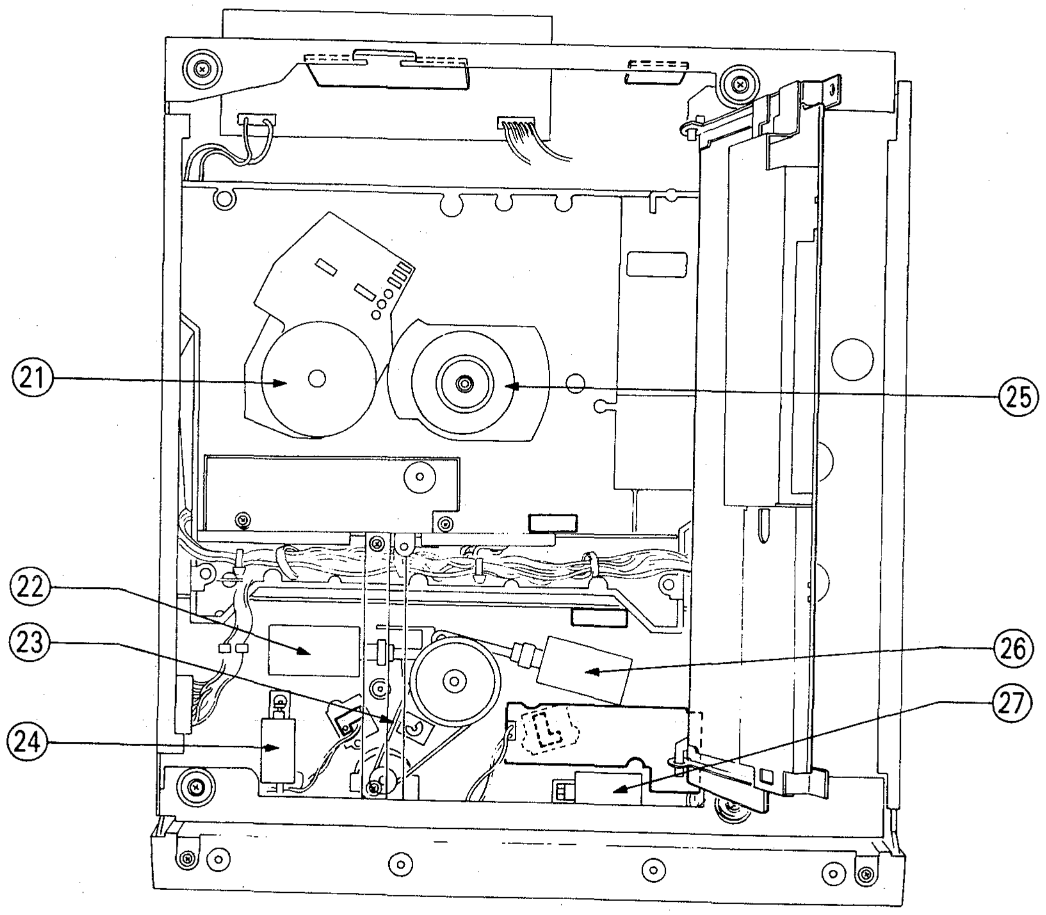
2-3-2. Location of the Mechanical Main Parts/ Components

[TOP VIEW]



1	Head Drum	11	Audio/CTL Head
2	Threading Ring	12	Pinch Lever
3	T Correction Guide	13	Capstan Shaft
4	Gear Box	14	Time Code Head
5	S Drawer Arm	15	Pinch Solenoid
6	T Drawer Arm	16	FR CTL Head
7	Pinch Roller	17	Full Erase Head
8	Take-up Reel Table	18	Search Solenoid
9	Idler Pulley	19	Supply Reel Table
10	FR Detector	20	Reel Motor

[BOTTOM VIEW]



21	Capstan Motor
22	Supply Idler Solenoid
23	Belf for FF/REW Idler
24	Supply Brake Solenoid
25	Drum Motor
26	Take-up Idler Solenoid
27	Take-up Brake Solenoid

2-4. PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-72	Y Demodulator, SP Detector, Character Mixer
	DM-73	C PB Processor
	DUS-271	Connector
	MD-60A	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40C	REC/PB Amplifier
AUDIO	AA-16	Connector
	AU-124A	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31A	Dolby NR, NR Pilot REC/Detector
	SW-315A	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112C	Drum/Capstan Servo
	SY-141C	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31A	REC/PB Amplifier
POWER	AC-98	Line Filter
	DC-31P	DC Supply
	UR-02	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159A	Function Key Board
	DP-62	Display
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
	SY-141C	System Control
	TG-22	Tension Regulator LED
OTHERS	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

2-5. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel Indication	Connector
MONITOR TV	1-506-161-00 CONNECTOR, 8P, MALE
SYNC IN RF (OFF TAPE) VIDEO IN VIDEO OUT MONITOR VIDEO TIME CODE IN TIME CODE OUT	1-560-069-11 PLUG, BNC, MALE
MONITOR AUDIO	1-506-311-00 PLUG, PIN
AUDIO LINE IN CH-1, CH-2	1-508-084-00 CONNECTOR, XLR, 3P, FEMALE
AUDIO LINE OUT CH-1, CH-2	1-508-083-00 CONNECTOR, XLR, 3P, MALE
REMOTE 1 (9P)	1-560-651-00 PLUG, 9P, MALE and 1-561-749-00 JUNCTION, SHELL, 9P
DUB IN	1-561-055-00 PLUG, 7P, FEMALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

VIDEO IN 1, 2	: 1.0 ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT	: 1.0 ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative
SYNC IN	: 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	: 0.5 Vp-p (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
AUDIO IN CH-1/L, CH-2/R	: +4 dB, 10 kohms, balanced
MICROPHONES CH-1/L, CH-2/R	: -60 dB, 3 kohms, unbalanced
AUDIO OUT CH-1/L, CH-2/R	: +4 dBm (at 600-ohm load), balanced
MONITOR AUDIO	: -5 dB (at 47-kohm load)
HEADPHONES	: -26 to -46 dB (adjustable)
TIME CODE IN	: 0 ± 6 dB, 10 kohms, unbalanced (0 dB = 1.55 Vp-p)
TIME CODE OUT	: 0 ± 3 dB, low impedance, unbalanced

2-7. SPARE PARTS

(1) The ⚠ -marked components are critical to safety.
Replace only with the same components as specified.

(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit. This is due to "accommodating improved parts and/or engineering changes" or "standardization of genuine parts".

. This manual's exploded views and electrical spare parts lists indicate the part numbers of "the present standardized genuine parts".

. Regarding engineering part changes by our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-8. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switch listed below is on the DM-73 board. This switch must be set according to operating conditions.

. DM-73 Board
S701: Low Band B/W Recorded Tape Playback Switch
When the tape that is recorded by the low band VTR (such as VO-5850P, VO-5600P etc.) is played back, this switch is set to OFF position.
When the unit is shipped, this switch is set to the ON position.

2-9. HOW TO OPERATE THE MACHINE WITHOUT INSTALLING A CASSETTE TAPE

(1) Remove the Cassette-up Compartment. (Refer to Section 2-1.)
(The Tape Beginning Sensor and Tape End Sensor are disabled according to disconnect the connector of Cassette-up Compartment.)

(2) Turn the power ON. (The machine enters the FR-STOP mode automatically.)

(3) The machine can be placed into the desired mode by pressing the function button corresponding to the mode.

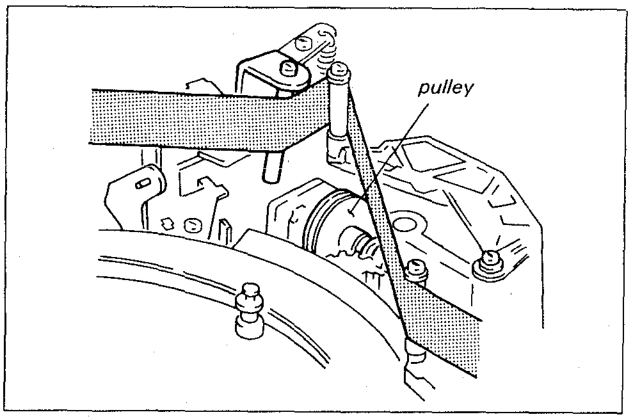
2-10. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the EJECT operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the EJECT operation takes place, the cassette tape can be removed from the set by following the procedures described below.

(1) Turn the power OFF.

(2) Remove the Top Panel. (Refer to Section 2-1.)

(3) Turn the white pulley of the Gear Box by hand in a clockwise direction looking from the front panel side until the Threading Ring is in the FR-STOP position (until the S Drawer Arm is located at the front of CTL head). At this time, the Threading Ring moves in the unthreading direction. But the tape remains at the position of threading completion.

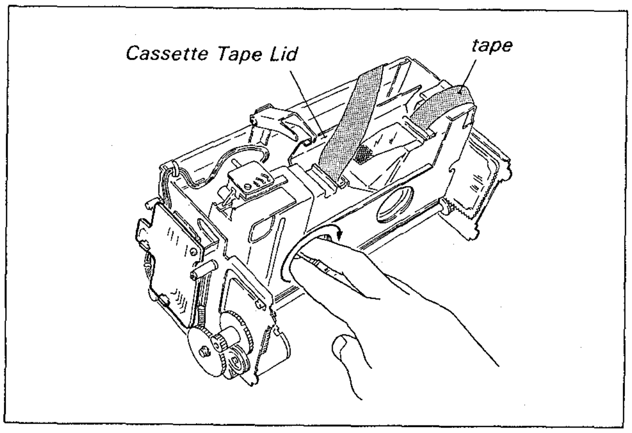


(4) Disconnect the connector CN1 on the CC-36 board of the Cassette-up Compartment.

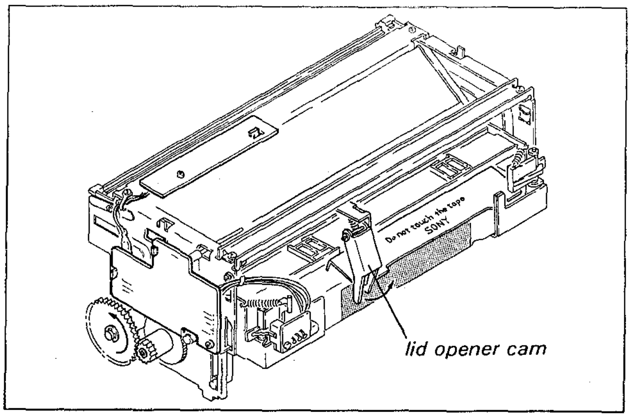
(5) Remove the Cassette-up Compartment Stay. (Refer to Section 2-1.)

(6) Slowly lift the Cassette-up Compartment with the cassette tape in it. Remove the tape remaining in the set carefully so that it is not damaged.

(7) Hold the Cassette Tape Lid so that it does not close. Wind the tape into the cassette by turning the reel hub on the back of the cassette by hand.



(8) Raise the cam for opening the lid and close the cassette tape lid.



(9) Remove the tape from the Cassette-up Compartment.

(10) Turn the gear on the right side of the Cassette-up Compartment by hand in a counterclockwise direction in order to place the Cassette-up Compartment into the up state.

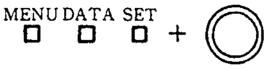
(11) Locate the cause of the trouble and remedy the problem.

2-11. DIAL MENU OPERATION

The system controls (Still Timer, Preroll Time, etc.) initially set at the factory can be arbitrarily modified using the SEARCH dial, MENU button, DATA button, and SET button.
The dial menu has the following functions:

- . BASIC FUNCTION
- . ENHANCED FUNCTION

2-11-1. Button and Dial Settings



Search dial: Selects the ITEM, Modifies the DATA, Moves the cursor.
MENU button: Selects the ITEM when used with a search dial.
DATA button: Selects the DATA when used with a search dial.
SET button : Writes the DATA into the memory.

2-11-2. Operation

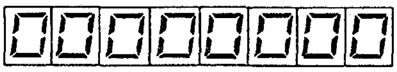
<Put the unit into DIAL MENU operation mode>

The DIAL MENU opration data appears on the Front Panel's time counter display and monitor television (the video signals should be connected to the VIDEO IN connector and the monitor television should be connected to the MONITOR connector on the Connector Panel).

(1) Set the REMOTE/LOCAL switch on the Front Panel to LOCAL.
(2) Put the unit into JOG mode (when the SHUTTLE lamp is on, press the SEARCH dial).
(3) Press the STOP button and put into the STOP mode or PLAY PAUSE mode.

(4) Set the CTL/TC/DIAL MENU switch on the Front Panel to DIAL MENU.
The unit is put into the DIAL MENU mode and the ◁□▷ lamp at the top of the SEARCH dial lights.

time counter display



Monitor

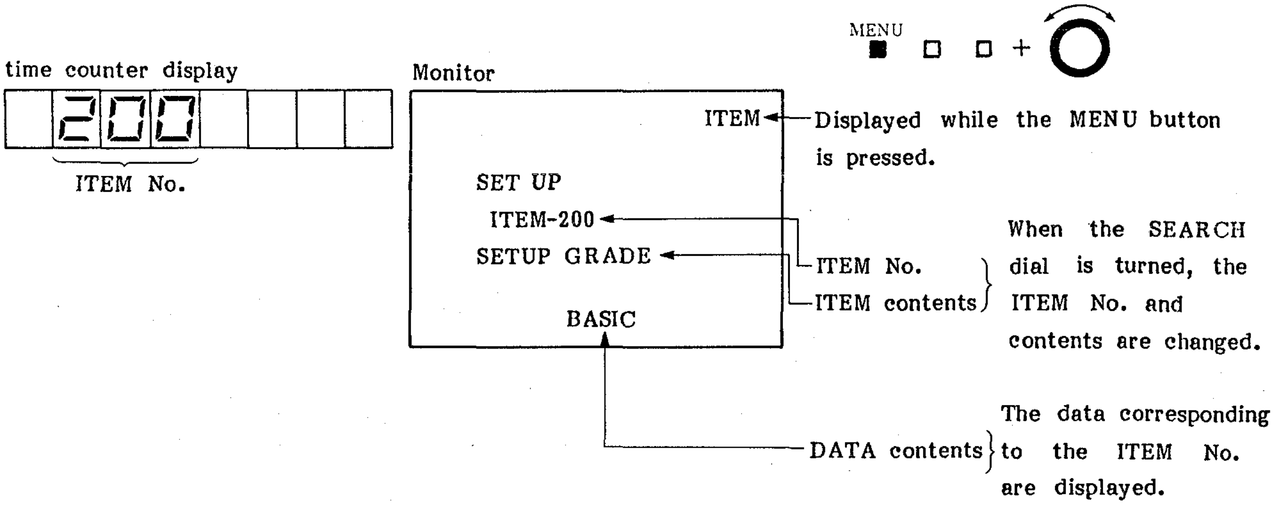
SETUP
ITEM-105
CARACTER POSITION
4

When the unit is put into the DIAL MENU mode after power on sequence, the ITEM-105 is selected automatically.

(NOTE) The VTR cannot be operated normally in the DIAL MENU operation mode.

<Select the ITEM>

(5) Turn the search dial while pressing the MENU button.


MENU
time counter display
200
ITEM No.
Monitor
ITEM
SET UP
ITEM-200
SETUP GRADE
BASIC
ITEM No.
ITEM contents
DATA contents

Displayed while the MENU button is pressed.

When the SEARCH dial is turned, the ITEM No. and contents are changed.

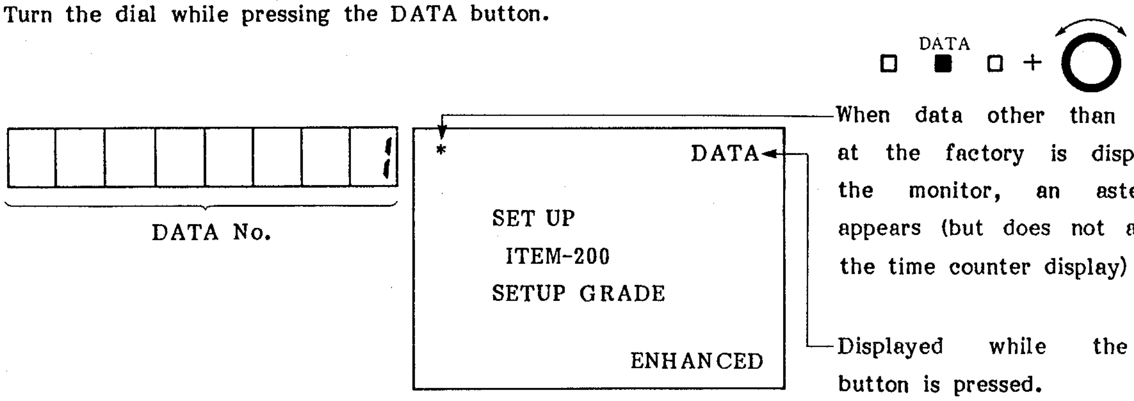
The data corresponding to the ITEM No. are displayed.

(6) Stop the dial when the desired ITEM is displayed, and then release the MENU button.

When the DATA No. on the time counter display and DATA contents on the monitor blink, they can be modified as following method.

<Modify the data>

(7) Turn the dial while pressing the DATA button.



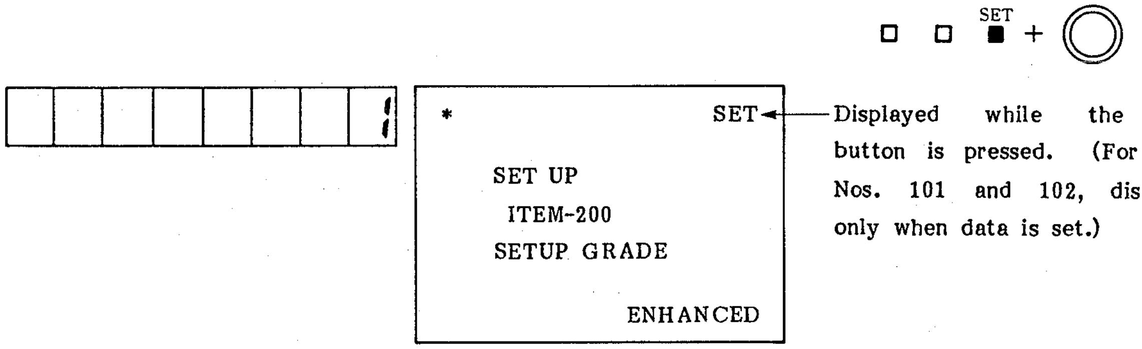
When data other than that set at the factory is displayed on the monitor, an asterisk (*) appears (but does not appear on the time counter display)

Displayed while the DATA button is pressed.

(8) Stop the dial when the desired data is displayed, and release the DATA button.

<Set the data>

(9) Press the SET button.



Displayed while the SET button is pressed. (For ITEM Nos. 101 and 102, displayed only when data is set.)

- The displayed data is written into the memory, the data remains unchanged even if the POWER switch is turned OFF.
- If the updated data is set, the ◁□▷ lamp at the top of the SEARCH dial flashes for one second when the SET button is pressed. The DATA No. and DATA content blinking stops at that time.

2-11-3. ITEM/DATA

(1) BASIC FUNCTION

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
105	CHARACTER POSITION	0 | 15	OFF 1 | 15	Set the character position that is super-imposed on the monitor (only the vertical direction). When set to OFF, the character is not displayed. The displayed data of TC(U-BIT)/CTL can be selected with CTL/TC/DIAL MENU switch on the Front Panel. Factory setting: DATA No.0 (OFF)
106	CHARACTER SIZE	0 1	SMALL LARGE	Set the character size that is displayed on the monitor. Factory setting: DATD No.0 (SMALL)
200	SETUP GRADE	0 1	BASIC ENHANCED	DATA No.0 BASIC:Enable to select ITEM from 105 to 200 in the DIAL MENU operation. DATA No.1 ENHANCED: Enable to select ITEM from 105 to 225 in the DIAL MENU operation. Factory setting: DATA No.0 (BASIC)

(2) ENHANCED FUNCTION

The ENHANCED FUNCTION can be used by setting data to ENHANCED in the ITEM No. 200.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
201	ERROR STATUS	-------- Error 02 Error 10 Error 20 Error 21 Error 22 Error 23 Error 90 Error 99	NONE TAPE SLACK HUMID SYSTEM ERROR no display SYSTEM ERROR 50 SYSTEM ERROR 60 no display no display	Self-diagnostic function. When trouble occurs during normal operation, message "ERROR CODE" appears on the Front Panel's time counter display in any mode. When the unit is put into the DIAL MENU mode to select this ITEM, error status corresponding to the error code are displayed on the monitor. (Refer to Section 2-11-4 for further details.) Note: The ITEM data content cannot be modified. Normal operation: -------- (NONE)
205	HOUR METER (DRUM)	00000 | 15000	00000H | 15000H	Displays the rotation time of the upper drum. Head replacement can be decided at that time. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
206	HOUR METER	00000 | 15000	00000H | 15000H	Displays the total time of the power on sequence. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
207	STILL TIMER	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0.5 SEC 1 SEC 5 SEC 10 SEC 20 SEC 30 SEC 40 SEC 50 SEC 1 MIN 2 MIN 3 MIN 4 MIN 5 MIN 6 MIN 7 MIN 8 MIN	The unit automatically enters the tape PROTECTION mode after it has been in the tape STOP (or STILL) mode for a fixed time to prevent the video head from clogging (to reduce the tape damage). This item sets the transition time of the tape STOP to tape PROTECTION mode. The time can be set from 0.5 seconds to 8 minutes. Factory setting: DATA No.15 (8 MIN)
209	SELECTION FOR SEARCH DIAL ENABLE	0 1	DIAL DIRECT VIA SEARCH BUTTON	When the SEARCH dial is turned or the SEARCH button is pressed, the unit enters the SEARCH mode. This item sets entering the SEARCH mode. DATA No.0 DIAL DIRECT: When the SEARCH dial is turned, the unit enters the SEARCH mode from any mode other than REC/EDIT. DATA No.1 VIA SEARCH BUTTON: When the SEARCH button is pressed, the unit enters the SEARCH mode. Factory setting: DATA No.1 (VIA SEARCH BUTTON)
214	PREROLL TIME	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0 SEC 1 SEC 2 SEC 3 SEC 4 SEC 5 SEC 6 SEC 7 SEC 8 SEC 9 SEC 10 SEC 11 SEC 12 SEC 13 SEC 14 SEC 15 SEC	Sets the preroll time during editing. The preroll time can be set from 0 to 15 seconds. Factory setting: DATA No.05 (5 SEC)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
218	PINCH ON DELAY	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Adjusts the time required from PLAY command sending to tape transport. Factory setting: DATA No.9 (9)
224	TAPE PROTECTION MODE	0 1	STEP FWD LONG PAUSE	When the time in the SEARCH STILL mode set using ITEM No.207 passes, selects the mode setting. DATA No.0 STEP FWD: The tape is sent repeatedly for one second at 1/30 times normal speed in the forward direction. DATA No.1 LONG PAUSE: Enters the LONG PAUSE mode. Factory setting: DATA NO.0 (STEP FWD)
225	NOISELESS STILL	0 1	OFF ON	Selects whether the NOISELESS STILL mode in SEARCH STILL mode or PAUSE mode. Factory setting: DATA No.0 (OFF)

2-11-4. System Error

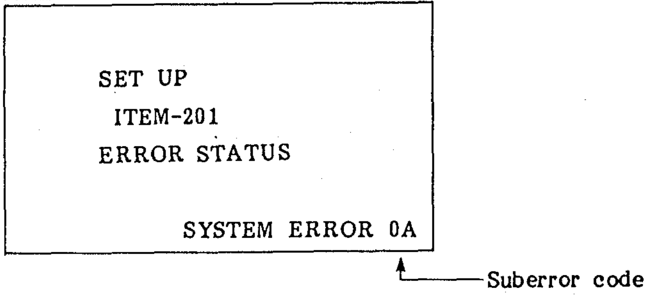
When a trouble occurs during normal operation and an error code appears on the time counter display of the Front Panel, the error status corresponding to the error code is displayed on the monitor by selecting the Item No. 201 on the dial menu. The error cause can be learned at that time.

counter display	monitor display	Description
Error 02	TAPE SLACK	Excessive tape tension
Error 10	HUMID	The condensation
Error 20	SYSTEM ERROR	Mechanical error. Distinguished by the suberror code. (Refer to the following.)
Error 21	————	RAM error when the POWER is ON.
Error 22	SYSTEM ERROR 50	Communication error between optional BKU-703 and the unit.
Error 23	SYSTEM ERROR 60	Communication error between microcomputors M1 and M2. (Detected by M1 side.)
Error 90	————	Communication error between SY board and KY board.
Error 99	————	Lacking the 1/2 VD pulse to supply for the SY board.

(NOTE) Displayed on the time counter display about ERROR 21, 90 99.

When Error 20 "SYSTEM ERROR" appears, a suberror code is displayed at the lower right corner on the monitor.
The suberror code is described below.

Monitor



SET UP
ITEM-201
ERROR STATUS

SYSTEM ERROR 0A

The suberror code is a two-digit hexadecimal number. Assume that the high-order digit is called Error 1 and the low-order digit called Error 0.

Error 0

0.	Normal operation
1.	Entering the FR STOP mode from threading exceeds the prescribed time (seven seconds).
2.	Entering the THREAD END mode from threading exceeds the prescribed time.

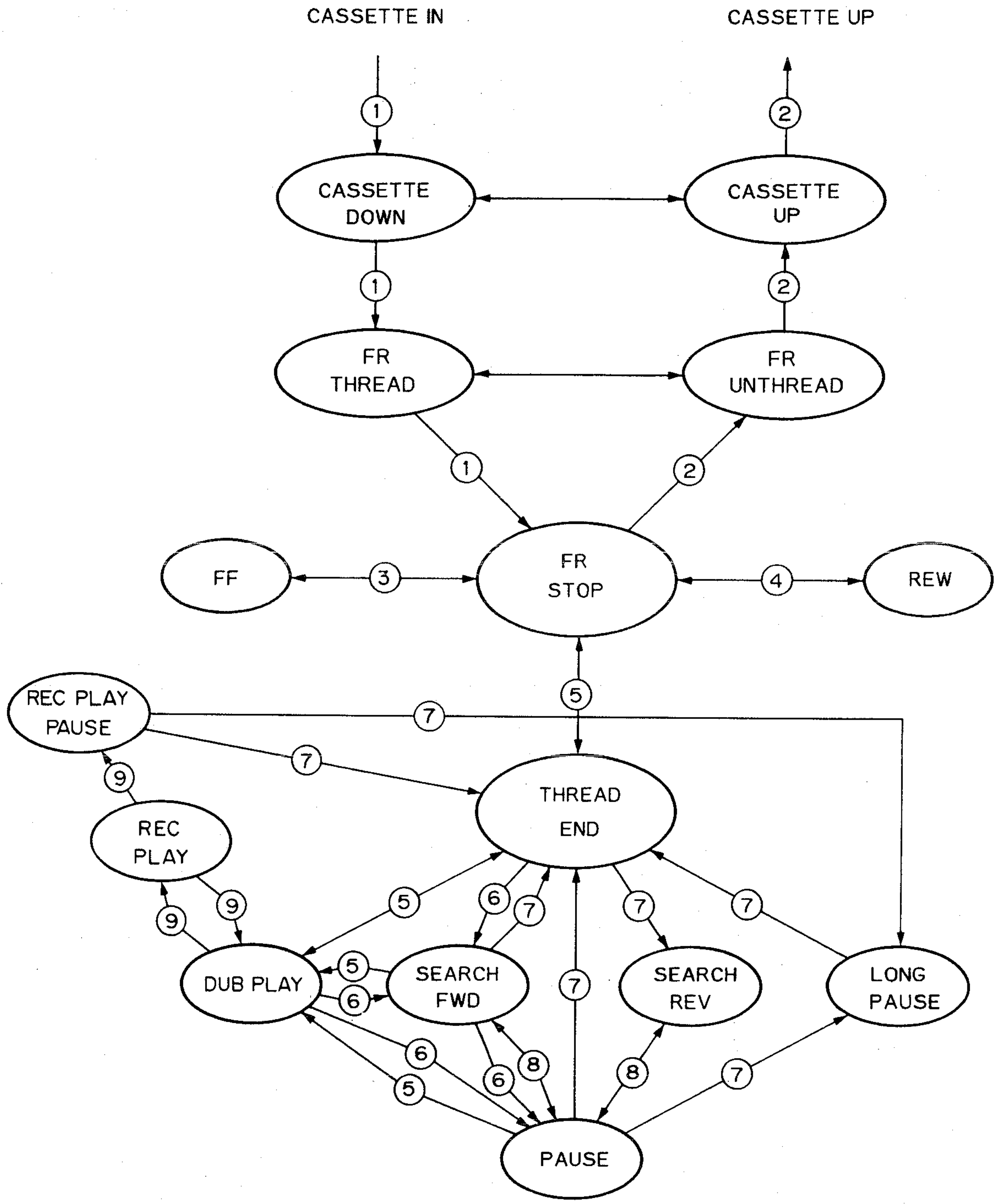
3.	Entering the FR-STOP mode from the THREAD END mode during unthreading exceeds the prescribed time.
4.	Returning from the FR-STOP mode to the CASSETTE DOWN position during unthreading exceeds the prescribed time.
5.	When a cassette is inserted and the EJECT button is pressed before the cassette-up compartment is lowered, raising the cassette exceeds the prescribed time.
6.	Detects the tape slack in FF/REW mode.
7.	Detects the tape slack during the unthreading operation from FR-STOP state.
8.	Detects the tape slack during the unthreading operation from the THREAD END to FR-STOP modes.
9.	Detects the tape slack in x5/x8 times normal forward mode.
A.	Detects the tape slack in x1 to x3 times normal forward mode.
B.	Detects the tape slack in x1/2 to x1 times normal forward mode.
C.	Detects the tape slack in x1/5 to x1/2 times normal forward mode.
D.	Detects the tape slack in x1/10 to x1/5 times normal forward mode.
E.	Detects the tape slack in x1/30 to x1/10 times normal forward mode.
F.	Does not stop the rotation of the capstan motor even if the STOP COMMAND send to it.

Error 1

0.	Normal operation
1.	Microcomputer M2 is not interrupted by the signal eight times the frequency of the 1/2 VD pulse.
2.	Communication error between microcomputers M2 and AV.
3.	Communication error between microcomputers M2 and SV.
4.	Communication error between microcomputers M1 and M2.
5.	Commenication error between optional BKU-703 and the unit.
6.	Communication error between microcomputers M1 and M2. (Detected by M1 side.)

2-12. TIMING CHART

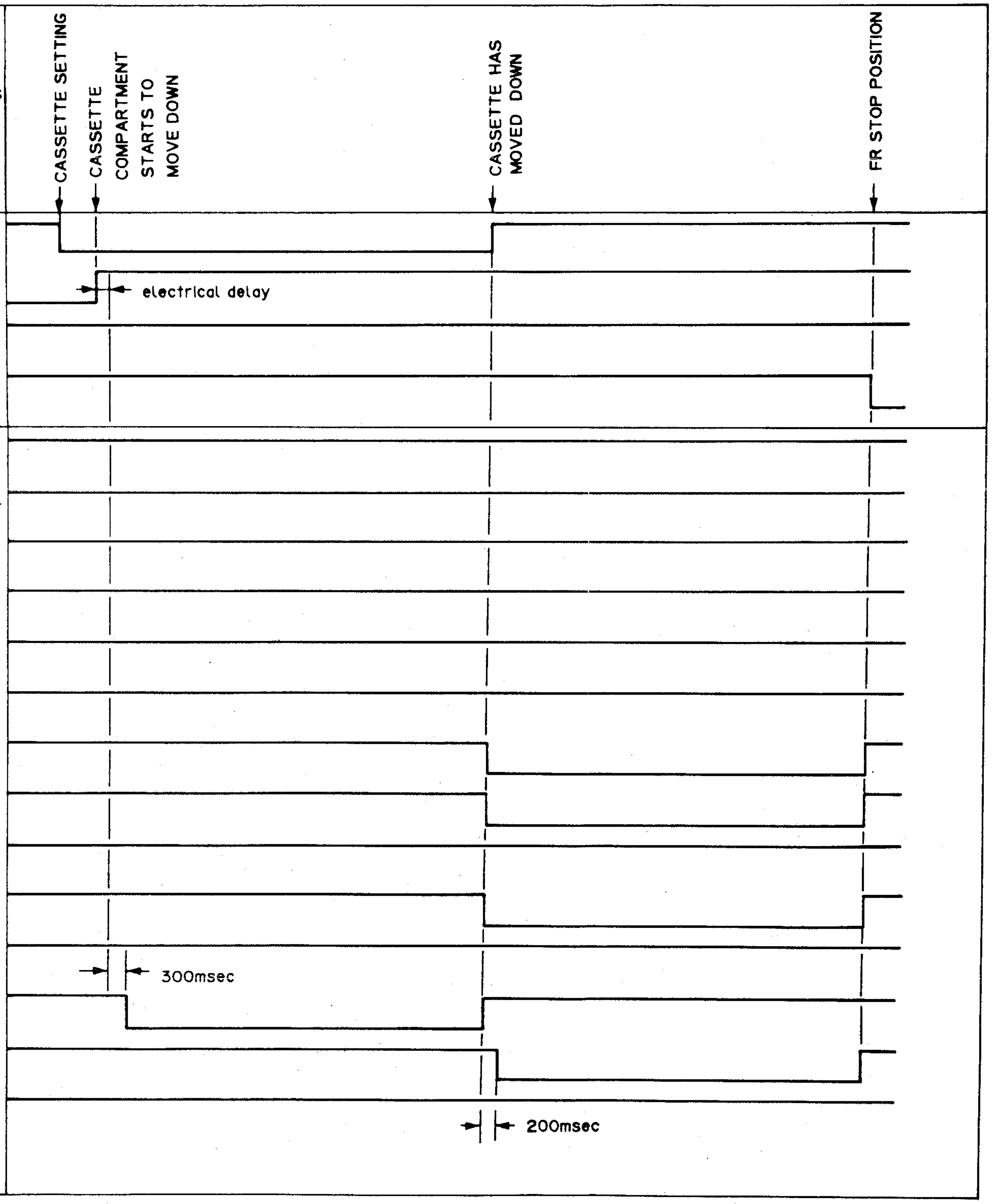
Mode Conversion Diagram


CASSETTE IN
CASSETTE UP
①
②
CASSETTE DOWN
CASSETTE UP
①
②
FR THREAD
FR UNTHREAD
①
②
FF
③
FR STOP
④
REW
⑤
REC PLAY PAUSE
⑦
⑦
⑨
THREAD END
REC PLAY
⑨
⑨
⑤
⑥
⑦
⑦
⑦
DUB PLAY
⑤
⑥
SEARCH FWD
⑦
SEARCH REV
LONG PAUSE
⑥
⑤
⑥
⑧
⑧
⑦
PAUSE

NOTE : Number in the Figure means title number of Timing chart.

1. THREADING OPERATION (CASSETTE IN→CASSETTE DOWN→FR STOP POSITION)

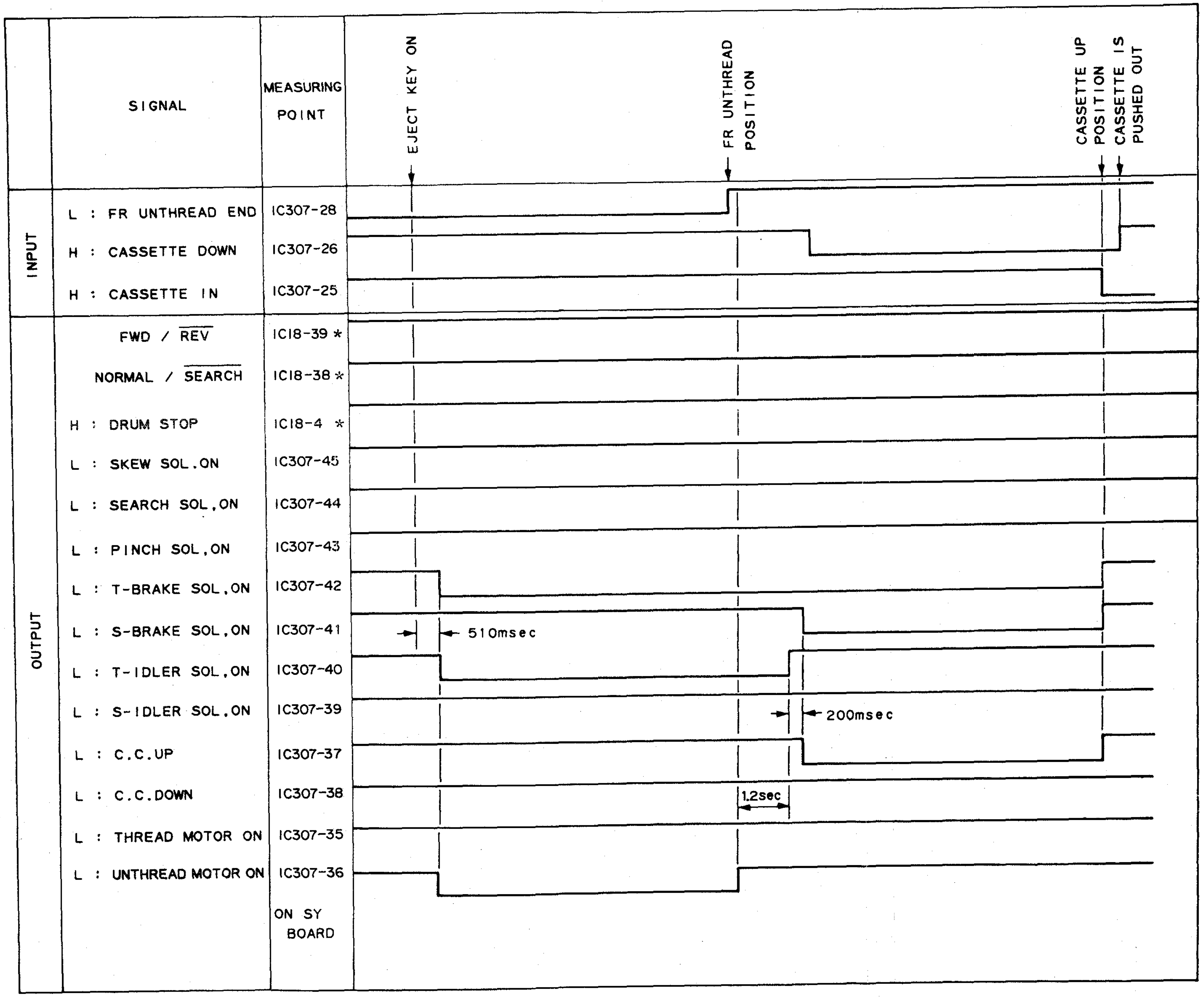
	SIGNAL	MEASURING POINT
INPUT	H : CASSETTE DOWN	IC307-26
	H : CASSETTE IN	IC307-25
	L : THREAD END	IC307-29
	L : UNTHREAD END	IC307-30
OUTPUT	FWD / $\overline{\text{REV}}$	IC18-39 *
	NORMAL / $\overline{\text{SEARCH}}$	IC18-38 *
	H : DRUM STOP	IC18-4 *
	L : SKEW SOL,ON	IC307-45
	L : SEARCH SOL,ON	IC307-44
	L : PINCH SOL,ON	IC307-43
	L : T-BRAKE SOL,ON	IC307-42
	L : S-BRAKE SOL,ON	IC307-41
	L : T-IDLER SOL,ON	IC307-40
	L : S-IDLER SOL,ON	IC307-39
	L : C,C, UP	IC307-37
	L : C,C, DOWN	IC307-38
	L : THREAD MOTOR ON	IC307-35
	L : UNTHREAD MOTOR ON	IC307-36
		ON SY BOARD



* NOTE: IC18 is on the SV board

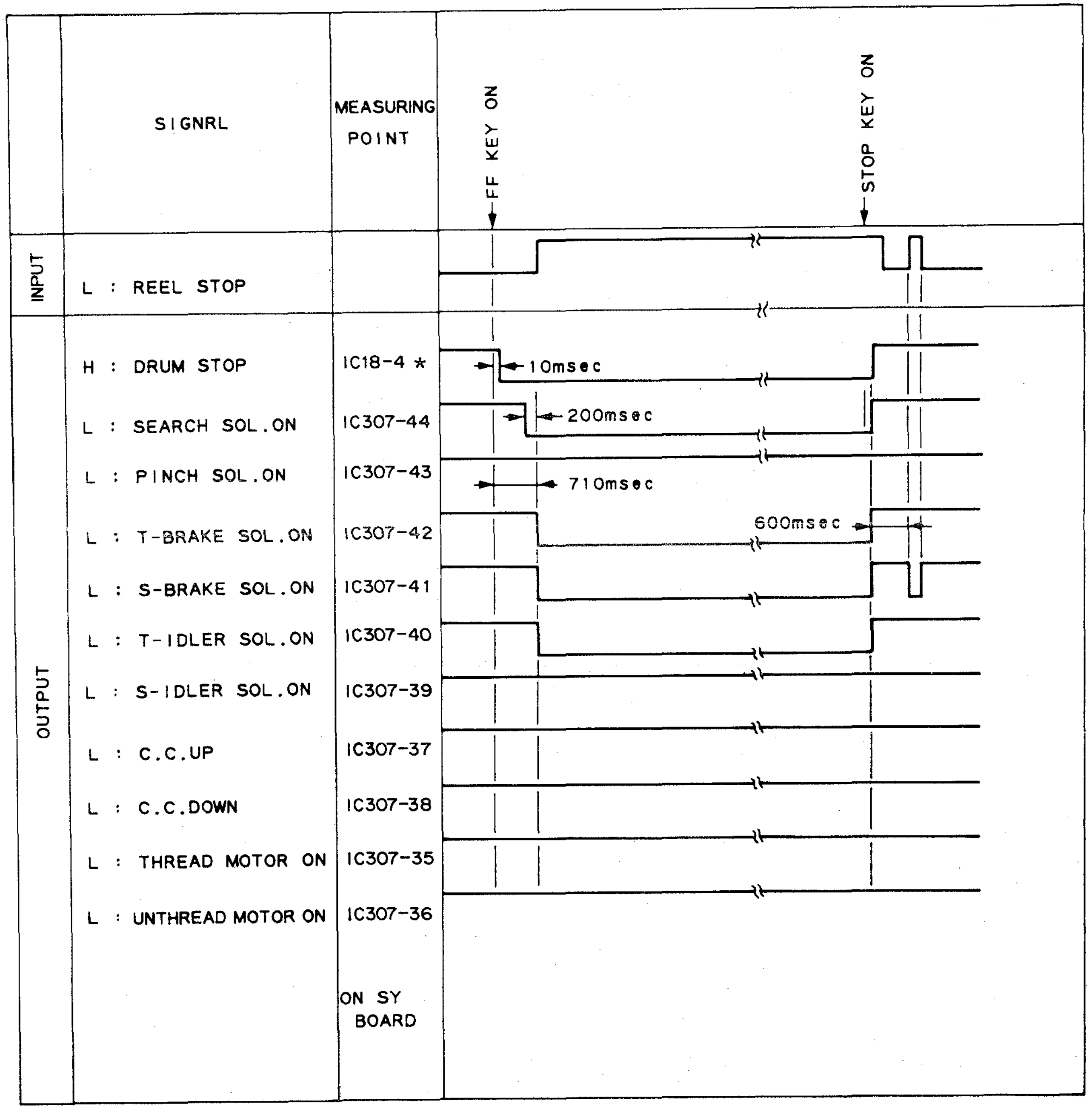
C.C. = CASSETTE UP COMPARTMENT

2. UNTHREADING OPERATION (FR STOP POSITION→FR UNTHREAD END POSITION→CASSETTE UP)


SIGNAL
MEASURING POINT
EJECT KEY ON
FR UNTHREAD POSITION
CASSETTE UP POSITION
CASSETTE IS PUSHED OUT
INPUT
L : FR UNTHREAD END
IC307-28
H : CASSETTE DOWN
IC307-26
H : CASSETTE IN
IC307-25
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : DRUM STOP
IC18-4 *
L : SKEW SOL.ON
IC307-45
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C.UP
IC307-37
L : C.C.DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD
510msec
200msec
1.2sec

*NOTE: IC18 is on the SV board

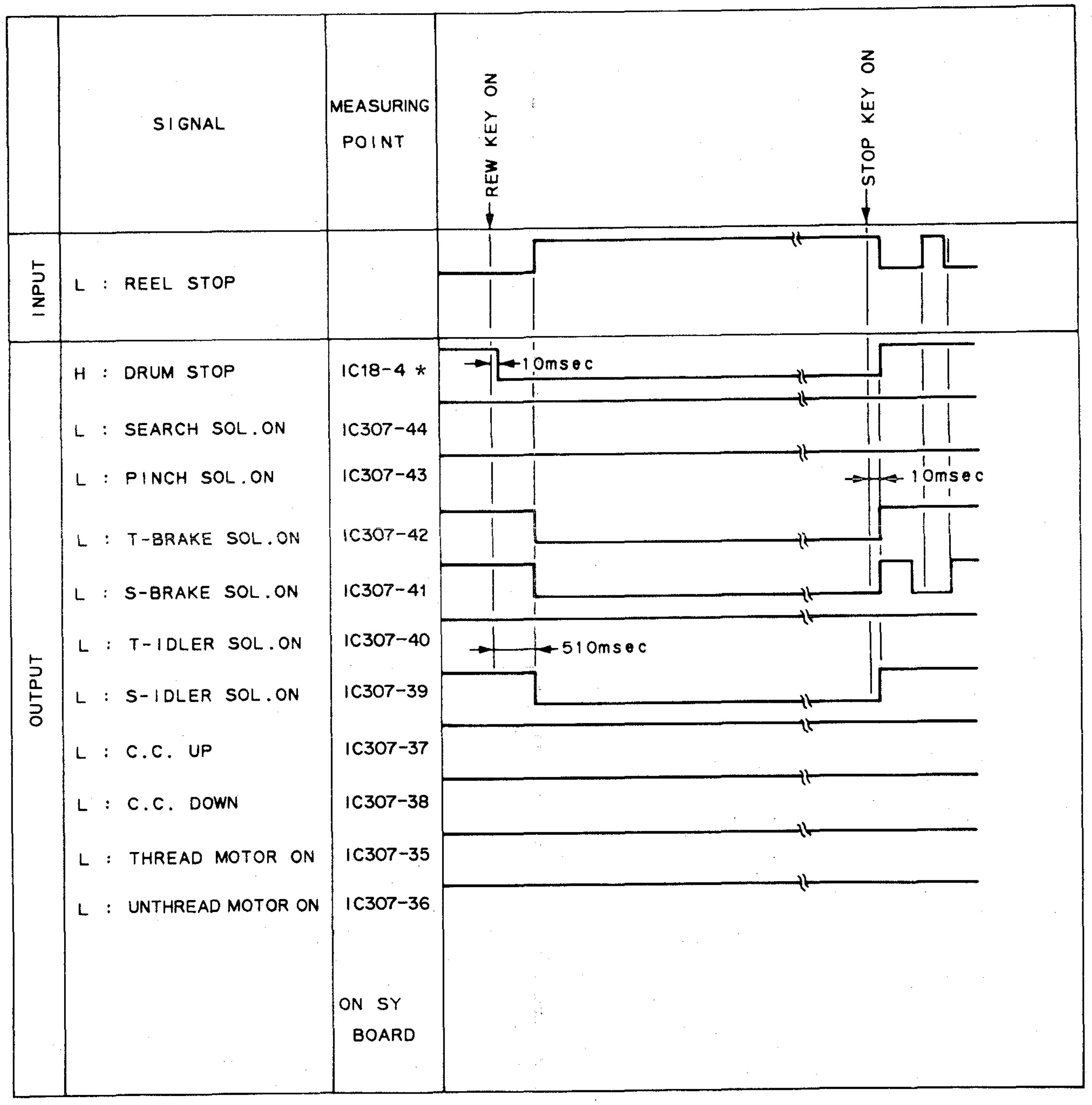
3. FF MODE (FR STOP→FF→FR STOP)



SIGNRL
MEASURING POINT
FF KEY ON
STOP KEY ON
INPUT
L : REEL STOP
OUTPUT
H : DRUM STOP
IC18-4 *
10msec
L : SEARCH SOL.ON
IC307-44
200msec
L : PINCH SOL.ON
IC307-43
710msec
L : T-BRAKE SOL.ON
IC307-42
600msec
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C.UP
IC307-37
L : C.C.DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD

*NOTE: IC18 is on the SV board

4. REW MODE (FR STOP→REW→FR STOP)

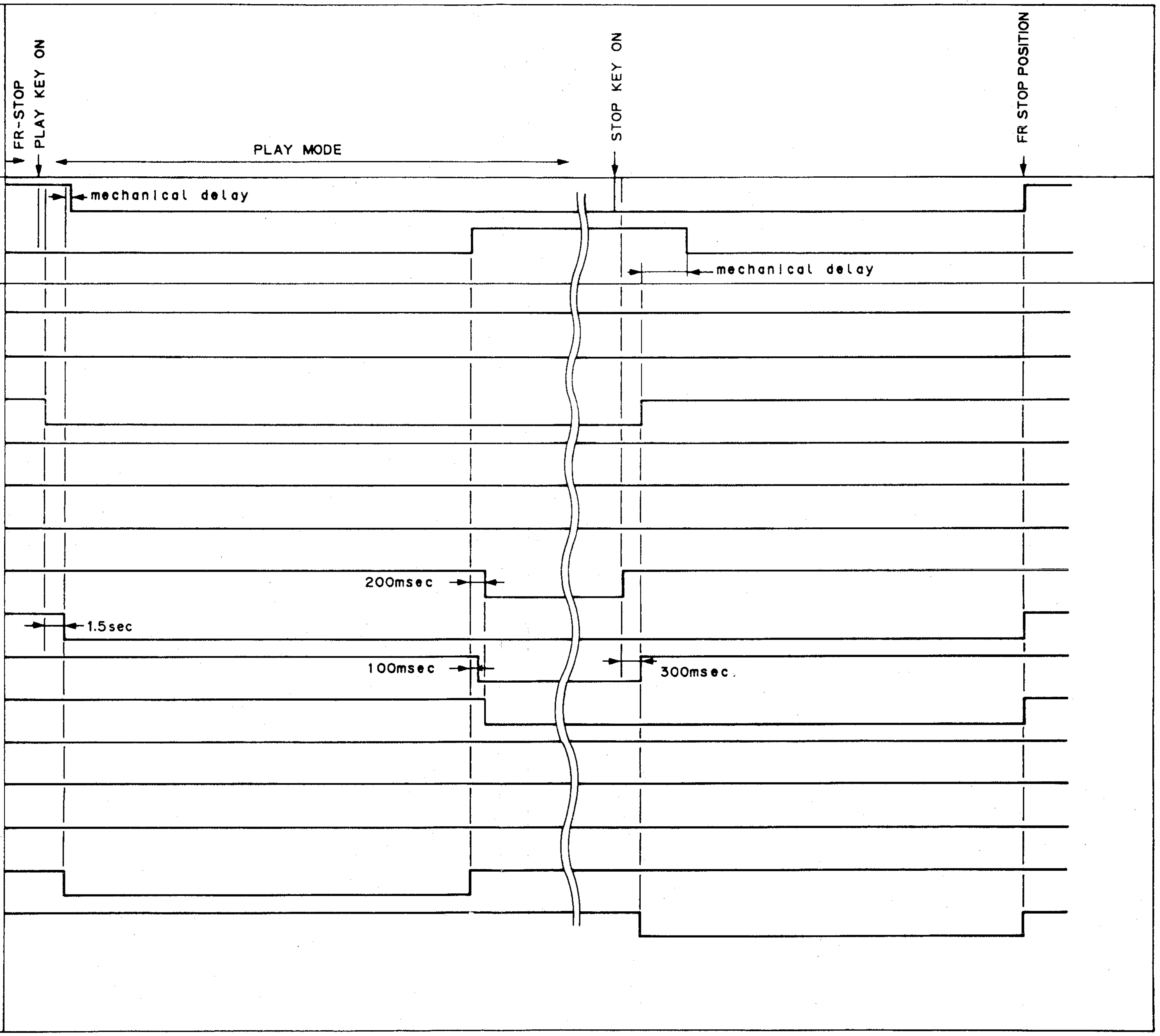


SIGNAL
MEASURING POINT
REW KEY ON
STOP KEY ON
INPUT
L : REEL STOP
OUTPUT
H : DRUM STOP
IC18-4 *
10msec
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
10msec
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
510msec
L : S-IDLER SOL.ON
IC307-39
L : C.C. UP
IC307-37
L : C.C. DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD

*NOTE: IC18 is on the SV board

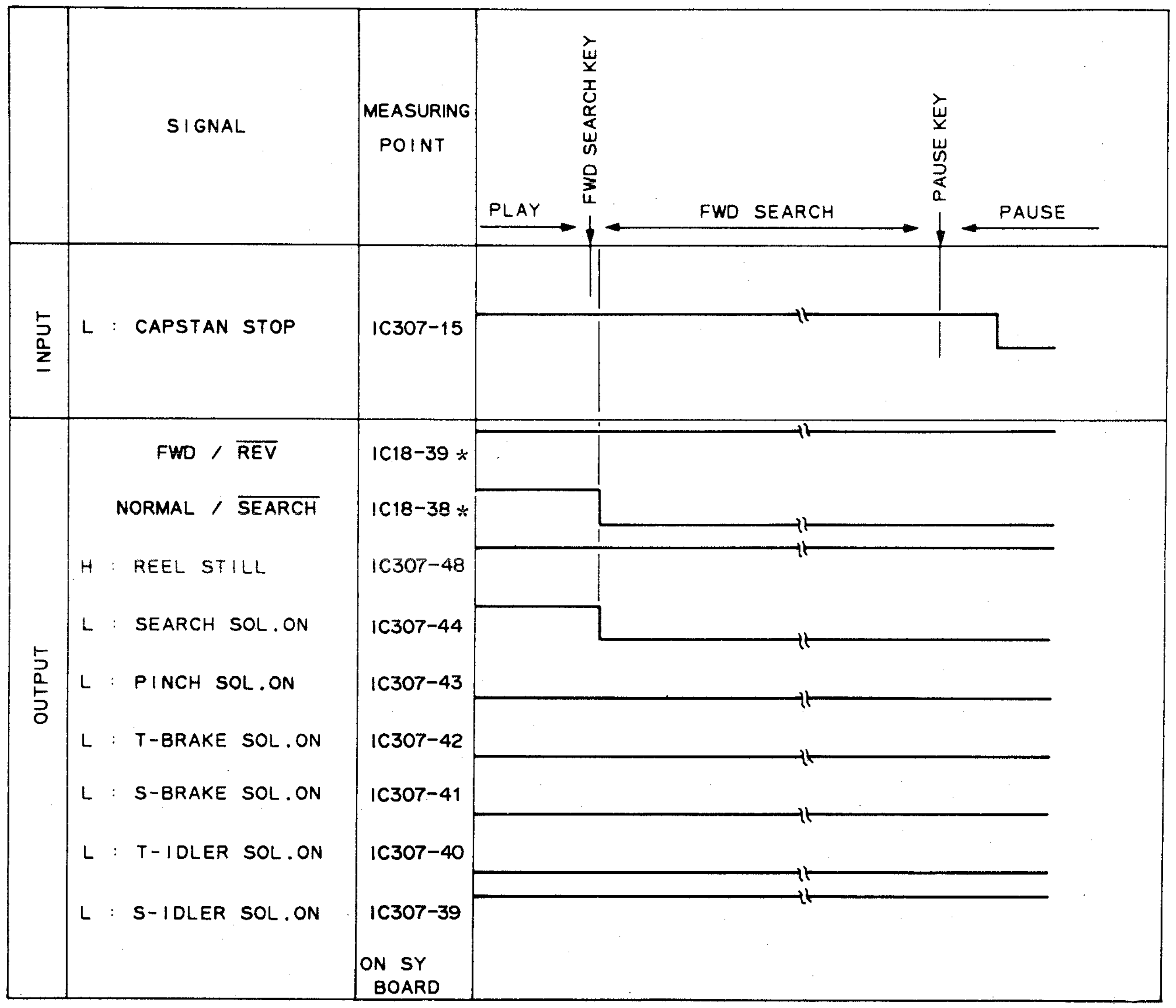
5. PLAY MODE (FR STOP→PLAY→FR STOP)

	SIGNAL	MEASURING POINT
INPUT	L : THREAD END	IC307-29
	L : UNTHREAD END	IC307-30
OUTPUT	FWD / $\overline{\text{REV}}$	IC18-39 *
	NORMAL / $\overline{\text{SEARCH}}$	IC18-38 *
	H : DRUM STOP	IC18-4 *
	L : SKEW SOL.ON	IC307-45
	H : REEL STILL	IC307-48
	L : SEARCH SOL.ON	IC307-44
	L : PINCHH SOL.ON	IC307-43
	L : T-BRAKE SOL.ON	IC307-42
	L : S-BRAKE SOL.ON	IC307-41
	L : T-IDLER SOL.ON	IC307-40
	L : S-IDLER SOL.ON	IC307-39
	L : C.C UP	IC307-37
	L : C.C DOWN	IC307-38
	L : THREAD MOTOR ON	IC307-35
	L : UNTHREAD MOTOR ON	IC307-36
		ON SY BOARD


FR-STOP
PLAY KEY ON
PLAY MODE
STOP KEY ON
FR STOP POSITION
mechanical delay
mechanical delay
200msec
1.5sec
100msec
300msec.

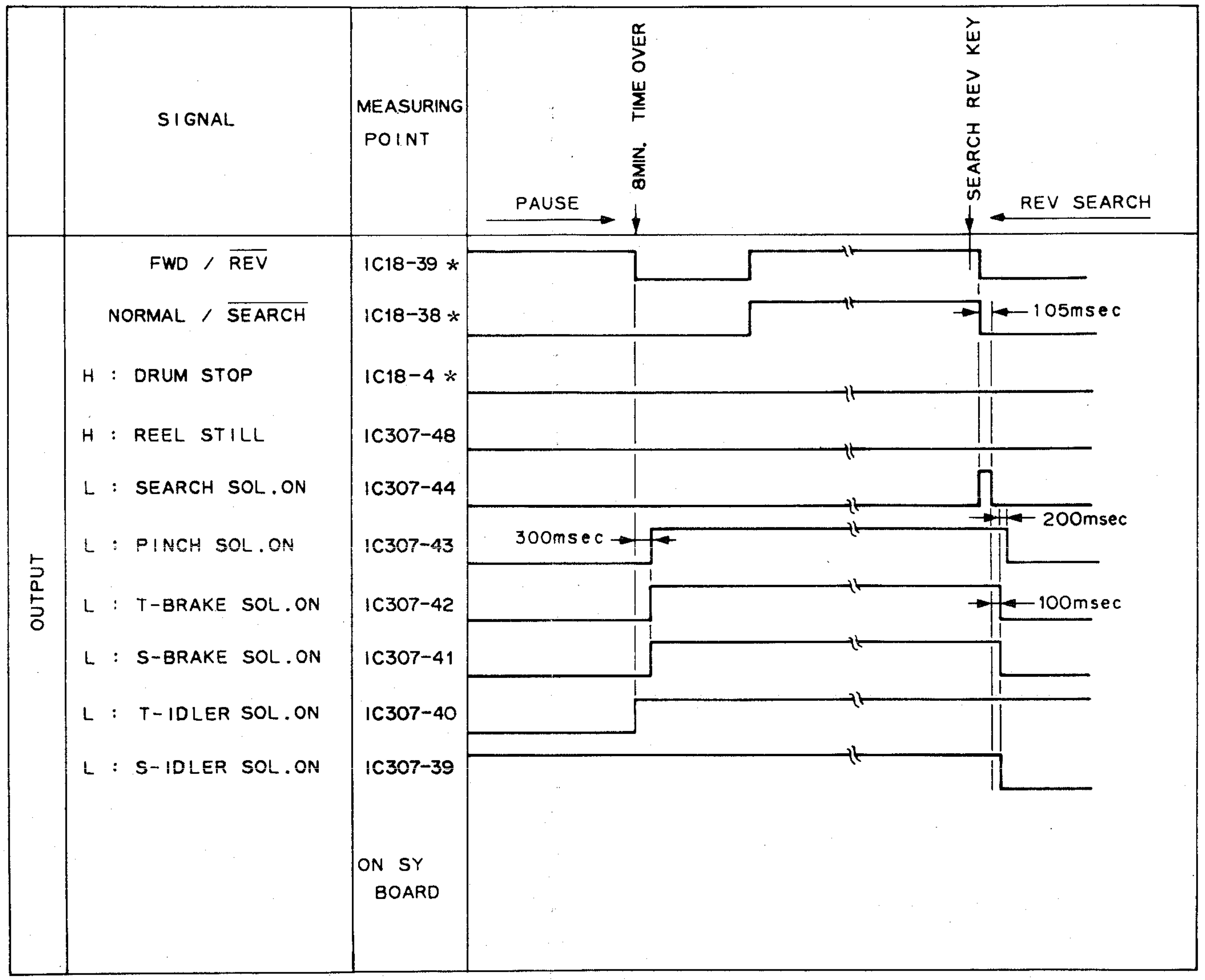
★ NOTE: IC18 is on the SV board

6. PLAY→FWD SEARCH→SEARCH PAUSE


SIGNAL
MEASURING POINT
FWD SEARCH KEY
PAUSE KEY
PLAY
FWD SEARCH
PAUSE
INPUT
L : CAPSTAN STOP
IC307-15
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
ON SY BOARD

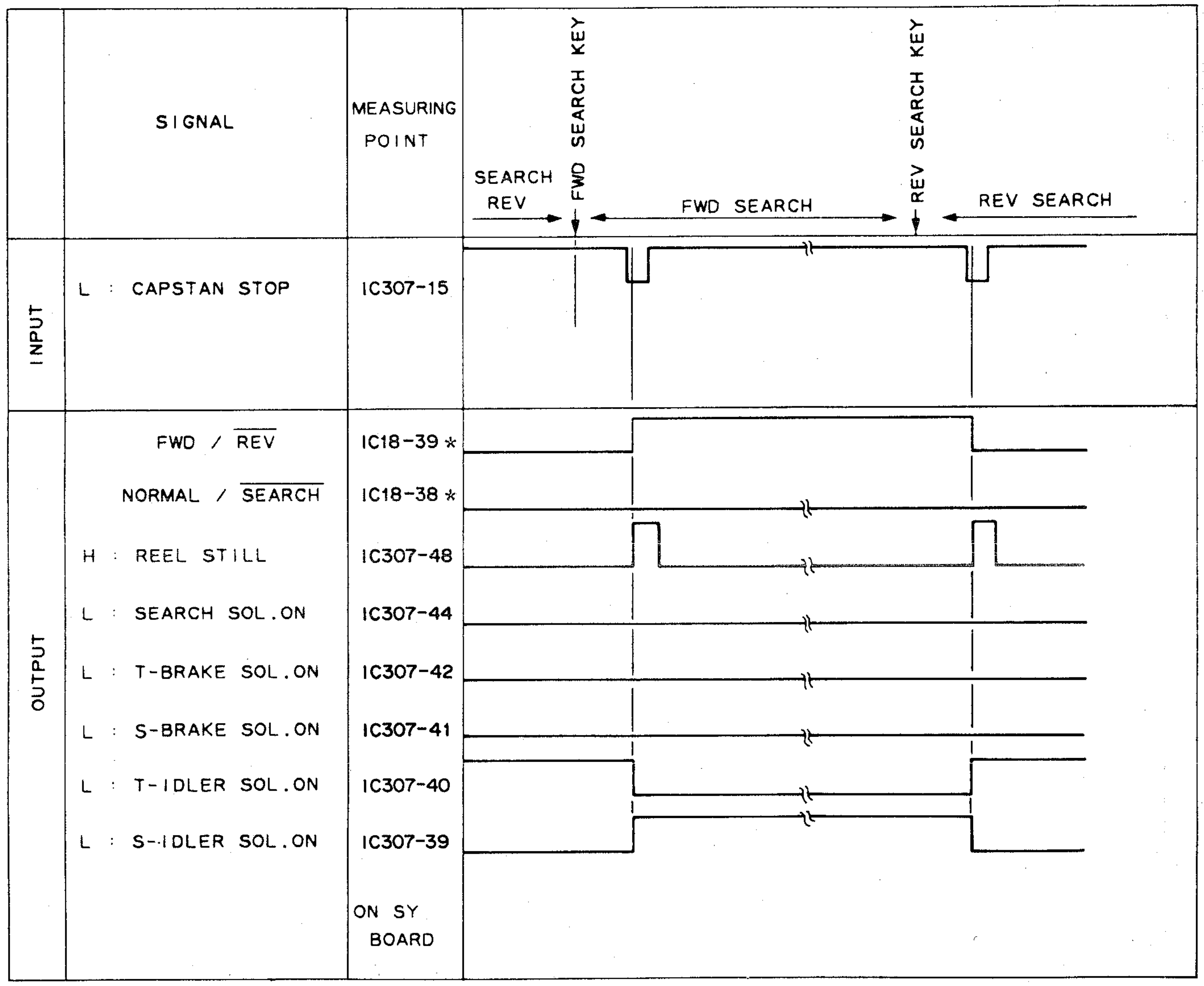
* NOTE: IC18 is on the SV board

7. PLAY PAUSE→LONG PAUSE→REV SEARCH


SIGNAL
MEASURING POINT
8MIN. TIME OVER
SEARCH REV KEY
PAUSE
REV SEARCH
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
105msec
H : DRUM STOP
IC18-4 *
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
200msec
L : PINCH SOL.ON
IC307-43
300msec
L : T-BRAKE SOL.ON
IC307-42
100msec
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
ON SY BOARD

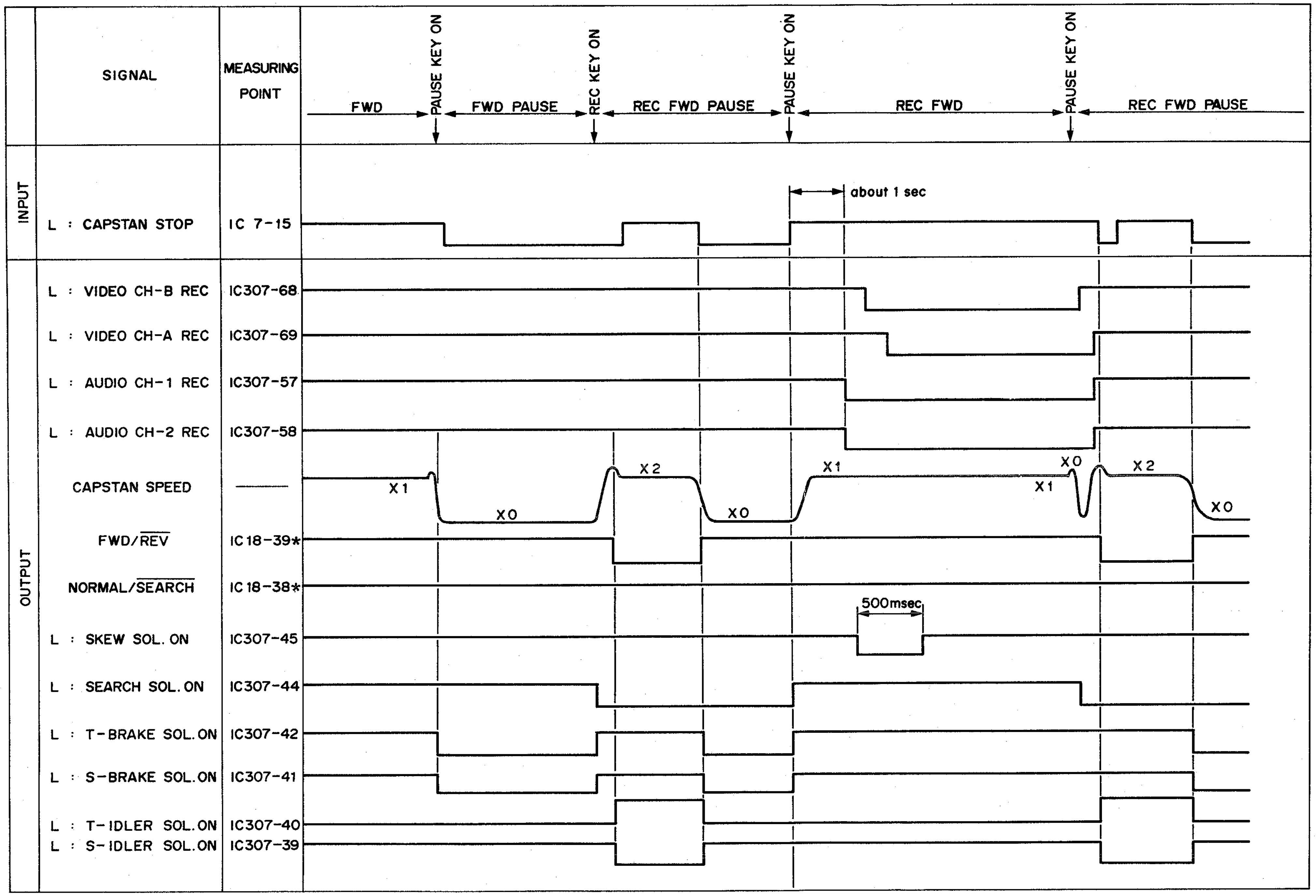
* NOTE: IC18 is on the SV board

8. REV SEARCH→(FWD PAUSE)→FWD SEARCH→(FWD PAUSE)→REV SEARCH


SIGNAL
MEASURING POINT
SEARCH REV
FWD SEARCH KEY
FWD SEARCH
REV SEARCH KEY
REV SEARCH
INPUT
L : CAPSTAN STOP
IC307-15
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
ON SY BOARD

*** NOTE: IC18 is on the SV board**

9. FWD → REC FWD → REC FWD PAUSE


SIGNAL
MEASURING POINT
FWD
PAUSE KEY ON
FWD PAUSE
REC KEY ON
REC FWD PAUSE
PAUSE KEY ON
REC FWD
PAUSE KEY ON
REC FWD PAUSE
INPUT
L : CAPSTAN STOP
IC 7-15
about 1 sec
OUTPUT
L : VIDEO CH-B REC
IC307-68
L : VIDEO CH-A REC
IC307-69
L : AUDIO CH-1 REC
IC307-57
L : AUDIO CH-2 REC
IC307-58
CAPSTAN SPEED
X1
X0
X2
X0
X1
X1
X0
X2
X0
FWD/REV
IC18-39*
NORMAL/SEARCH
IC18-38*
500msec
L : SKEW SOL. ON
IC307-45
L : SEARCH SOL. ON
IC307-44
L : T-BRAKE SOL. ON
IC307-42
L : S-BRAKE SOL. ON
IC307-41
L : T-IDLER SOL. ON
IC307-40
L : S-IDLER SOL. ON
IC307-39

NOTE: IC18 is on the SV board

2-13. FIXTURE

Part No.	Description
J-6001-820-A	Drum Eccentricity Gauge (3)
J-6001-830-A	Drum Eccentricity Gauge (2)
J-6001-840-A	Drum Eccentricity Gauge (1)
J-6001-930-A	Drum Eccentricity Gauge (4)
J-6009-830-A	Flatness Plate
J-6026-240-A	Adjustment Driver
J-6130-010-A	Reel Table Height Check Base Jig
J-6130-020-A	Reel Table Height Check Jig
J-6153-020-A	Dihedral Adjustment Driver
J-6150-140-A	Eccentricity Screwdriver (6 mm dia.)
J-6153-580-A	Pinch Lever Adjustment Jig
Y-2031-001-0	Cleaning Fluid
2-034-697-00	Cleaning Piece
3-702-216-01	Back Tension Adjustment Jig
3-702-391-01	Eccentricity Screwdriver (5 mm dia.)
7-661-018-01	Sony Oil
7-732-050-20	Tension Scale (50g)
7-732-050-30	Tension Scale (100g)
7-732-050-40	Tension Scale (200g)
7-732-050-50	Tension Scale (500g)
8-899-999-53	Torque Measurement Tape
8-960-020-62	Alignment Tape, RR5-2SB PAL
8-960-035-61	Alignment Tape, RR5-2SC PAL
8-960-036-02	Alignment Tape, RR2-1SD PAL
8-960-036-80	Alignment Tape, RR5-1SD PAL
9-911-053-00	Thickness Gauge

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from the unit.

3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

(1) Cleaning of the video heads.

- Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.
  (Never turn the motor by the electric power for the cleaning.)
- Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.

(2) Cleaning of tape running system

- Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.

(3) Cleaning of drive system

- Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the unit.

3-3. HOURS METER

This VTR has an hours meter. The hours meter has two display modes, and these modes can display on the Time Counter Display.

Two display modes are as follows:

1. Displays the accumulated time of the rotation of the upper drum. The data from 0 to 15000 hours can be displayed.
2. Displays the accumulated power-on time. The data from 0 to 15000 hours can be displayed.

It is recommended to perform the periodic check and maintenance based on the hours meter.

How to put the Time Counter Display into the Hours Meter mode, please refer to Section 2-11. Dial Menu Operation.

HOURS METER mode:

- Menu No.205: HOURS METER (DRUM)
  Rotation time of the upper drum
- Menu No.206: HOUR METER
  Power-on time

3-4. OTHERS

(1) Sony oil

- Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)
  Sony oil: Part No. 7-661-018-01
- Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ◆ : Replacement ◇ : Check (Adjustment) ◎ : Rotation

Item	Operating hours(H)													
	Part No.	Menu No.	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Reference	Reference of Exploded View
Tape path block	—	205	○	○	○	○	○	○	○	○	○	○	—	—
Upper drum ass'y (DUR-46-R)	A-6709-637-A	205	○	◆	○	◆	○	—	○	◆	○	◆	4-1	16-13
Head drum ass'y (DUH-46B-R)	A-6709-682-A	205	○	○	○	○	○	◆	○	○	○	○	4-2	16-13
Audio/CTL head	8-825-578-22	205	○	○	○	○	○	◆	○	○	○	○	4-7	16-13
Time code head (PP295-58)	8-825-771-31	205	○	○	○	○	○	◆	○	○	○	○	—	16-15
FR CTL head (PP170-58)	8-825-514-20	205	○	○	○	○	○	◆	○	○	○	○	4-4	16-15
Full erase head	8-825-544-20	205	○	○	○	○	○	◆	○	○	○	○	—	16-15
Pinch roller ass'y	A-6750-223-A	205	○	◆	○	◆	○	◆	○	◆	○	◆	4-9	16-9
Capstan motor (BHF-1915B)	8-835-258-02	205	—	—	—	—	—	◆	—	—	—	—	4-3	16-13
Reel driving motor (FN30-T26N1E)	8-835-178-01	205	—	—	—	—	◆	—	—	—	—	◆	—	16-3
Threading motor (DNR-4700A)	1-541-376-11	205	—	—	—	—	◆	—	—	—	—	◆	4-10-2	16-9
Tape guide, TG-3	3-660-102-00	205	○	○	○	○	○	◎	○	○	○	○	—	16-13
Tape guide, TG-4	3-718-388-01	205	○	○	○	○	○	◎	○	○	○	○	—	16-13
* Reel belt	3-668-785-00	205	○	○	○	◆	○	○	○	◆	○	○	—	16-7
* Threading belt	3-672-737-01	205	○	○	○	◆	○	○	○	◆	○	○	4-10-3	16-9
Reel table ass'y	A-6739-017-A	205	○	○	○	○	○	◆	○	○	○	○	—	16-3, 16-5
* Idler tire ass'y	X-3646-026-0	205	○	○	○	◆	○	○	○	◆	○	○	—	16-5
* Tension regulator band ass'y	X-3668-707-0	205	—	—	—	◆	—	—	—	◆	—	—	—	16-3
* Lining holder ass'y	X-3668-749-0	205	—	—	—	◆	—	—	—	◆	—	—	—	16-3, 16-5
* R brake ass'y	X-3668-737-0	205	—	—	—	◆	—	—	—	◆	—	—	—	16-5
Idler pulley block ass'y	A-6740-069-B	205	—	—	—	—	—	◆	—	—	—	—	—	16-7
Worm pulley ass'y	X-3668-743-0	205	—	—	—	◆	—	—	—	◆	—	—	—	16-9
Check the FWD back tension	—	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-5	—
Check the brake torque	—	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-1	—

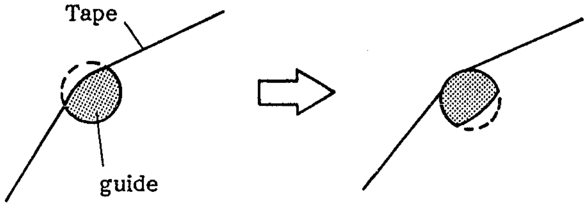
(NOTE 1) The Upper Drum Ass'y is included in the Head Drum Ass'y. When replacing the Head Drum Ass'y, the Upper Drum Ass'y is replaced together.

(NOTE 2) Be sure to clean the tape run area in reparing.

(NOTE 3) Operating hours (such as replacement, check and so on) will be defferent in operating environment.

(NOTE 4) We recommend you to replace early the * marked parts for maintenance of the best condition.

(NOTE 5) ◎ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



SECTION 4
REPLACEMENT OF MAJOR PARTS

4-1. REPLACEMENT OF THE UPPER DRUM

. The Rotary Video Heads cannot be replaced individually. The entire Upper Drum Assembly should be replaced when any of these heads fails.

Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)

Replacement procedure:

(1) Unsolder the four leads of the video head from the printed circuit board. Remove the two fixing screws and then remove the Upper Drum Assembly from the Head Drum Assembly.

(2) Clean the matching surfaces of the flange and new Upper Drum Assembly with a cloth moistened with cleaning fluid. (If there is a spacer between the drum and the flange, it should be left on the flange. If the spacer is lost, correct interchangability cannot be obtained.)

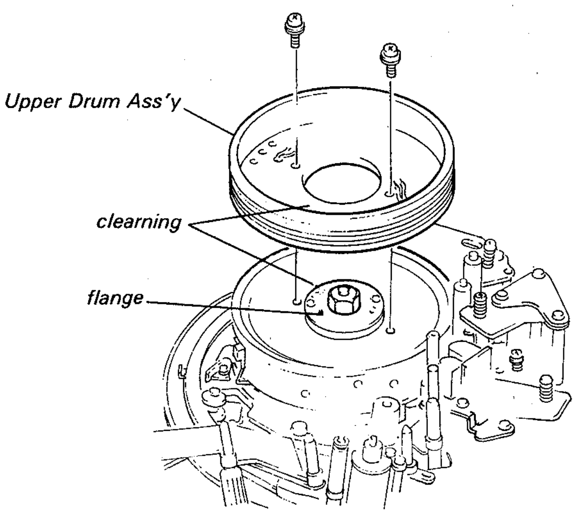
(3) Place the Upper Drum Assembly as shown in the figure. Thread the two fixing screws snugly but do not tighten them.

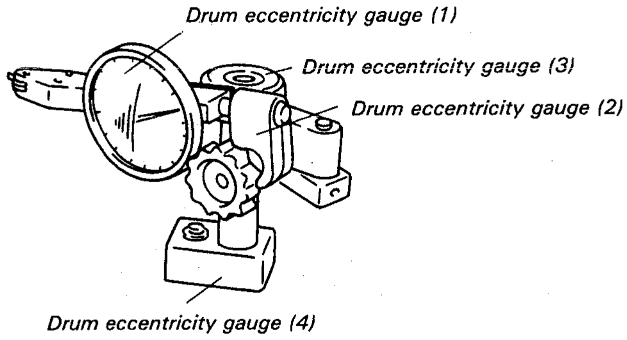
Adjustment procedure:

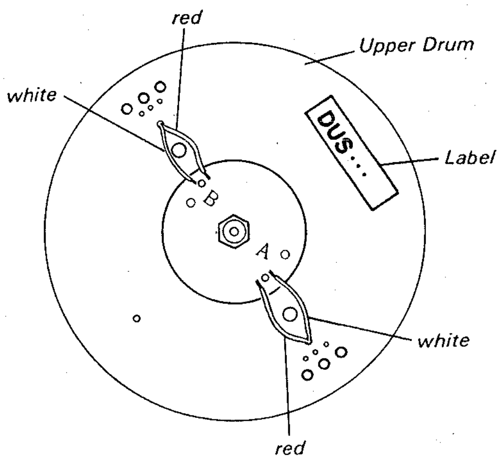
(1) Remove the S Guard Block. (The connector at the bottom of the S Guard is inserted into the connector on the chassis.)

(2) Assemble the Drum Eccentricity Gauges (1), (2), (3) and (4) as shown in the figure. Set the assembled gauges on the unit so that the probe tip is positioned at a point about 5 mm from the top edge of the Upper Drum.

(3) Turn the Upper Drum slowly in the clockwise direction and check that the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within specification, proceed with the Step (5). If it is not, perform Step (4).


Upper Drum Ass'y
clearning
flange


Drum eccentricity gauge (1)
Drum eccentricity gauge (3)
Drum eccentricity gauge (2)
Drum eccentricity gauge (4)


red
Upper Drum
white
DUS...
Label
B
A
white
red

(4) Tap the inside of the Upper Drum with a nylon hammer or a screwdriver handle until the gauge deflection remains within 5 microns.

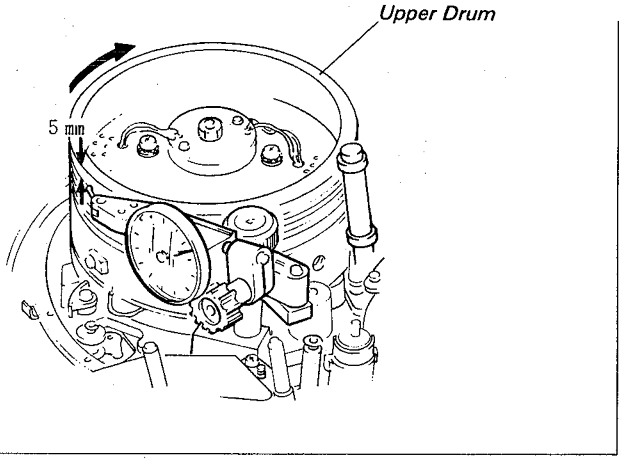
(5) After the adjustment, alternately tighten the two fixing screws of the Upper Drum. (Tightening torque: 14 to 16 kg-cm)

(6) After tightening the screws, check that the gauge deflection is within 5 microns.

(7) Solder the four leads from the video heads to the printed circuit board as shown in the figure.

(8) Install the S Guard Block. (Insert the connector at the bottom of the S Guard Block securely into the connector on the chassis.)

(9) Adjust as described in Section 4-11.



4-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:

(1) Remove the Shield Plate.

(2) Disconnect the three connectors of the drum assembly on the back of the unit.

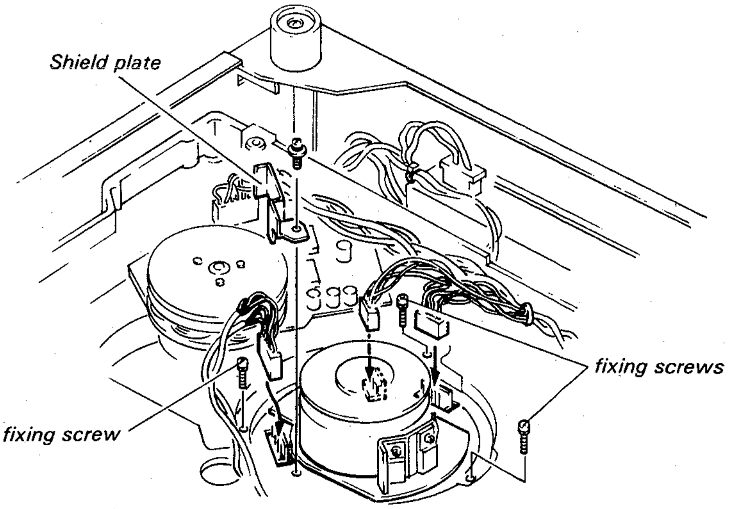
(3) Remove the three fixing screws which hold the drum.

(4) Install the drum on the base while turning the drum assembly in the clockwise direction when viewed from top of the unit.

(5) Connect the three connectors.

(6) Tighten the fixing screw of the Shield Plate.

(7) Adjust as descrebed in Section 4-11.



4-3. REPLACEMENT OF THE CAPSTAN MOTOR

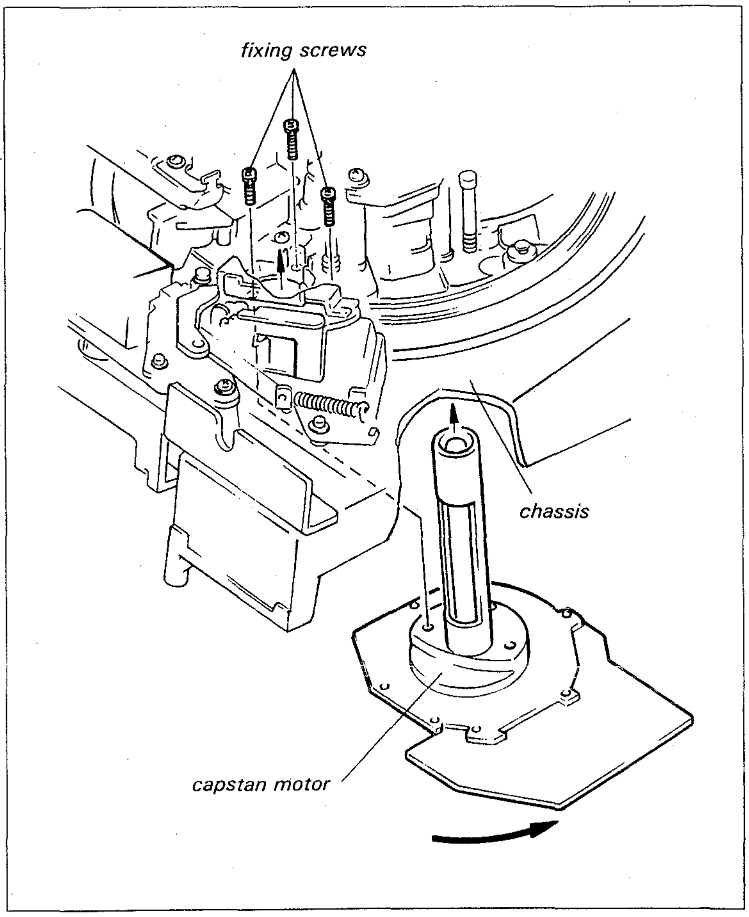
Replacement procedure:

(1) Remove the Capstan Motor from the unit.

(2) Install the new Capstan Motor and thread the three fixing screws snugly but do not tighten them.

(3) Tighten the fixing screws while turning the Capstan Motor in the direction of the arrow.

(4) Adjust as described in Section 4-11.


fixing screws
chassis
capstan motor

4-4. REPLACEMENT OF THE FR CTL (CTL PB) HEAD

Replacement procedure:

(1) Disconnect CN341 and CN342 on the EC-32 Board.

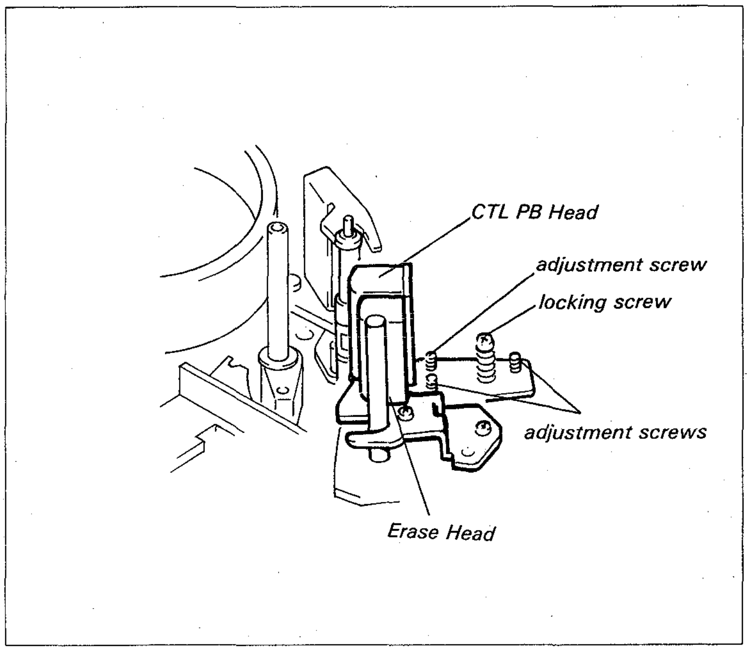
(2) Remove the locking screw and remove the CTL PB Head Block from the unit. Never tighten or loosen the three adjustment screws.

(3) Remove the two fixing screws at the bottom of the bracket and remove the head.

(4) Remove the EC-32 Board from the head and solder it to the new head.

(5) Perform steps (1) to (3) in reverse order.

(6) Adjust as described in Section 4-11.


CTL PB Head
adjustment screw
locking screw
adjustment screws
Erase Head

4-5. REPLACEMENT OF THE S DRAWER ROLLER

Replacement procedure:

(1) Put the unit into the EJECT completion mode without a cassette tape.

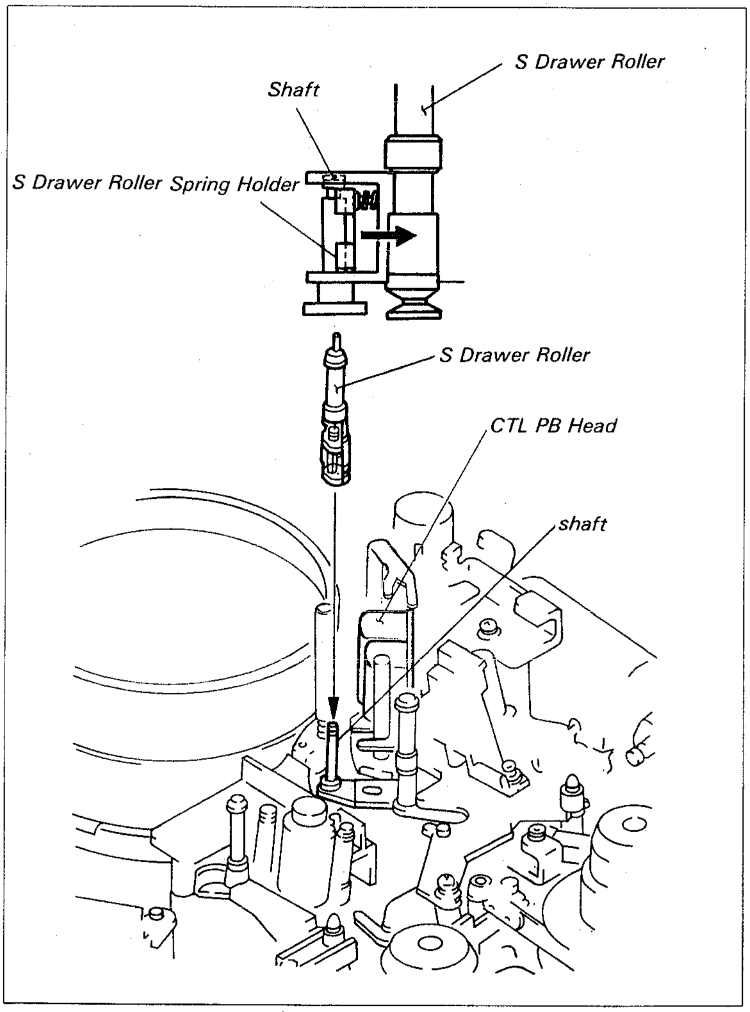
(2) Turn the pulley of the Gear Box by hand until the S Drawer Roller comes in front of the CTL PB Head.

(3) Remove the S Drawer Roller from the shaft while pushing the spring holder in the direction of the arrow.

(4) Smear a little Sony Grease in the notch at the bottom of the new S Drawer Roller.

(5) While pushing the spring holder in the direction of the arrow, install the new S Drawer Roller onto the shaft until the S Drawer Roller locks to the shaft.

(6) Adjust as described in Section 4-11.


S Drawer Roller
Shaft
S Drawer Roller Spring Holder
S Drawer Roller
CTL PB Head
shaft

4-6. REPLACEMENT / ADJUSTMENT OF THE TAPE GUIDES ON THE THREADING RING

. There are three tape guides on the Threading Ring. This section describes the replacement of the three tape guides and the width adjustment of the two tape guides.

Tool: slide vernier callipers of equivalent
L-shaped hexagonal wrench
(across flat has 1.27 mm)

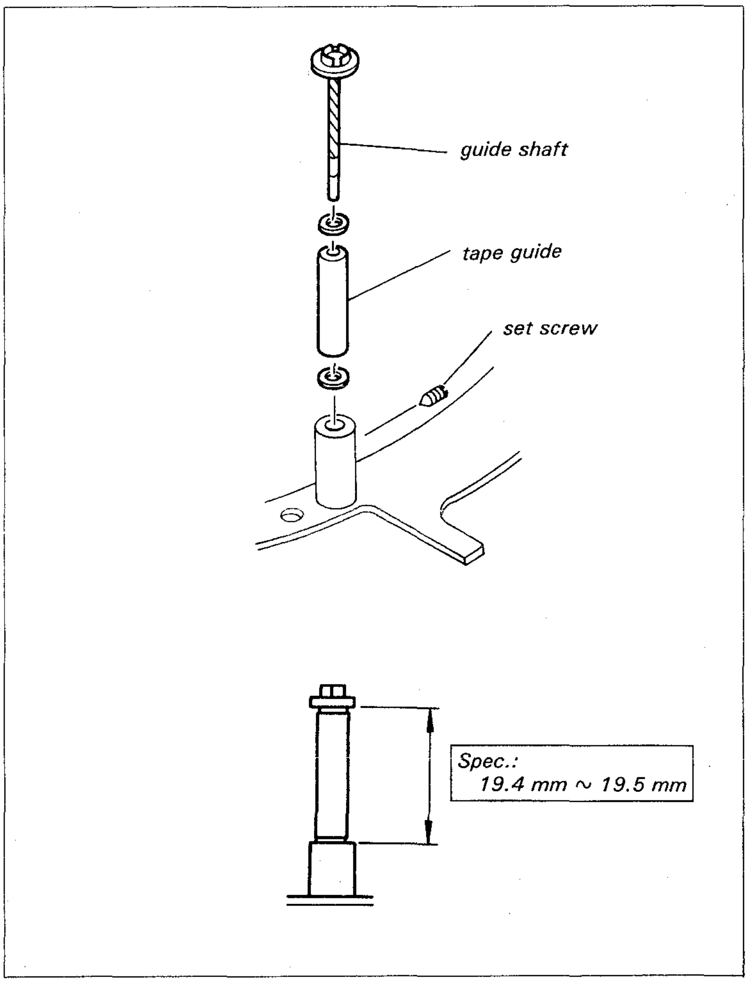
Mode: Put the unit into the FR-STOP mode without a cassette tape.

Replacement procedure:

(1) Loosen the set screw of the boss and remove the guide shaft.
(2) Clean the guide shaft with a cloth moistened with cleaning fluid.
(3) Assemble the guide.
(4) Adjust the height of the sub-ring guide as shown in the figure.
(5) Adjust as described in Section 4-11.

Adjustment procedure:

(1) Adjust the height of the tape guide and tighten the set screw of the boss. Check that the guide roller turns smoothly.
(2) Insert the cassette tape and put the unit into the PLAY mode. Check that the tape runs along the upper flange of the tape guide without curling.
(3) Adjust as described in Section 4-11.



4-7. Replacement of the Audio/CTL Head

Replacement procedure:

(1) Remove the Audio/CTL Head Block from the unit after removing the three fixing screws as shown in the figure.

(2) Remove the Audio/CTL Head and the shield case (F and B) after removing the two fixing screws as shown in the figure.

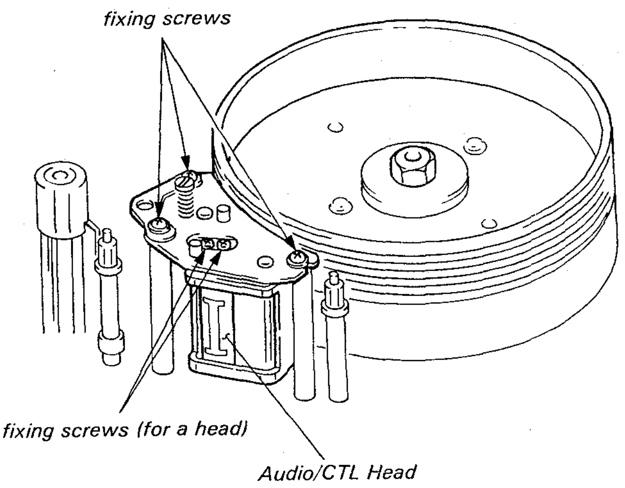
(3) Remove the two fixing screws from the shield case.

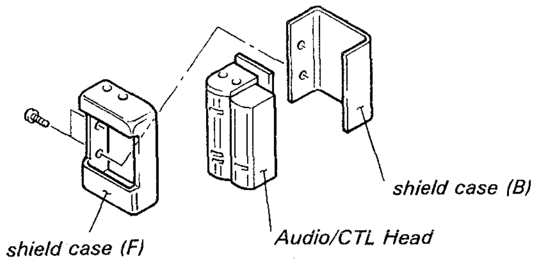
(4) Unsolder the ten leads from the printed circuit board and remove the DUS-92 Board from the head.

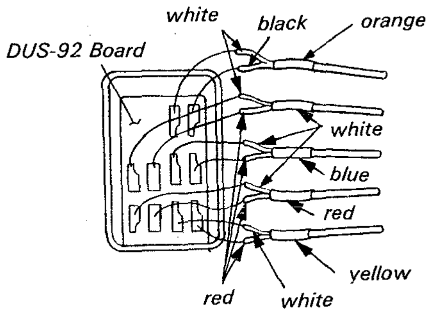
(5) Replace the head with a new one and solder the leads to the DUS-92 Board as shown in the figure.

(6) Perform steps (1) to (3) in reverse order.

(7) Adjust as described in Section 4-11.


fixing screws
fixing screws (for a head)
Audio/CTL Head


shield case (B)
shield case (F)
Audio/CTL Head


white
black
orange
DUS-92 Board
white
blue
red
yellow
red
white

4-8. REPLACEMENT OF THE THREADING RING

Replacement procedure:

(1) Remove the E Head Base Block from the unit after removing the three fixing screws.

(2) Remove the S Guard Assembly and the FR Detector from the unit.

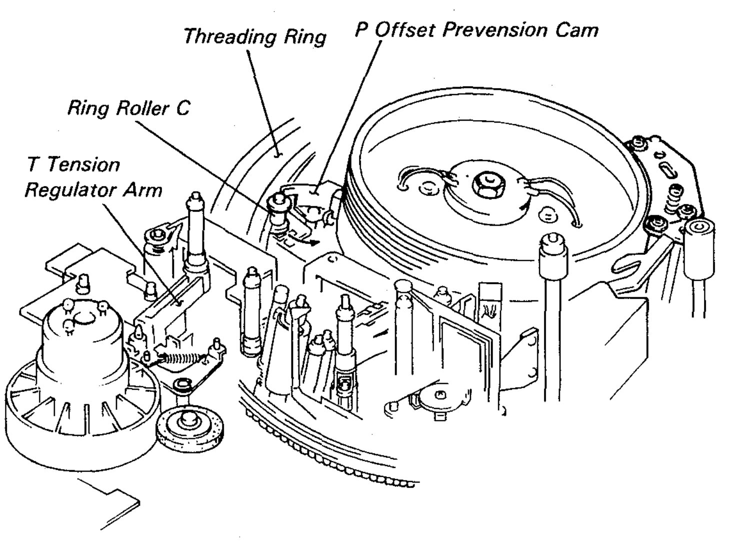
(3) Loosen the two fixing screws from the Threading Gear Block and remove it from the Threading Ring.

(4) Loosen the fixing screw and then move the Ring Roller (C) and the P Offset Prevention Cam in the direction of the arrow.

(5) Remove the Threading Ring from the unit and replace it with a new one.

(6) Perform steps (1) to (4) in reverse order.

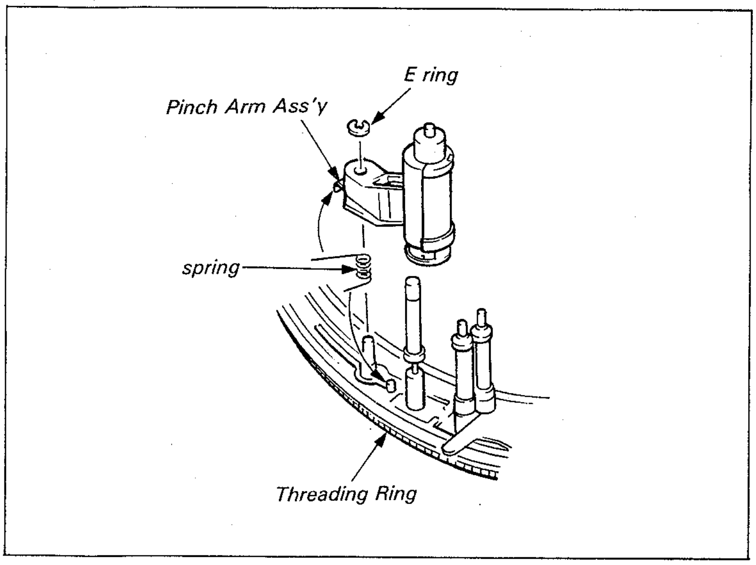
(7) Adjust as described in Section 4-11.


Threading Ring
P Offset Prevension Cam
Ring Roller C
T Tension
Regulator Arm

4-9. REPLACEMENT OF THE PINCH ROLLER

Replacement procedure:

(1) Turn the pulley of the Gear Box until the S Drawer Roller is in front of the CTL PB Head.
(2) Remove the Pinch Arm Assembly from the Threading Ring after removing the E ring.
(3) Replace the Pinch Roller Assembly with a new one.
(4) Install the Pinch Roller Assembly on the Threading Ring as shown in the figure.
(5) Adjust as described in Section 4-11.

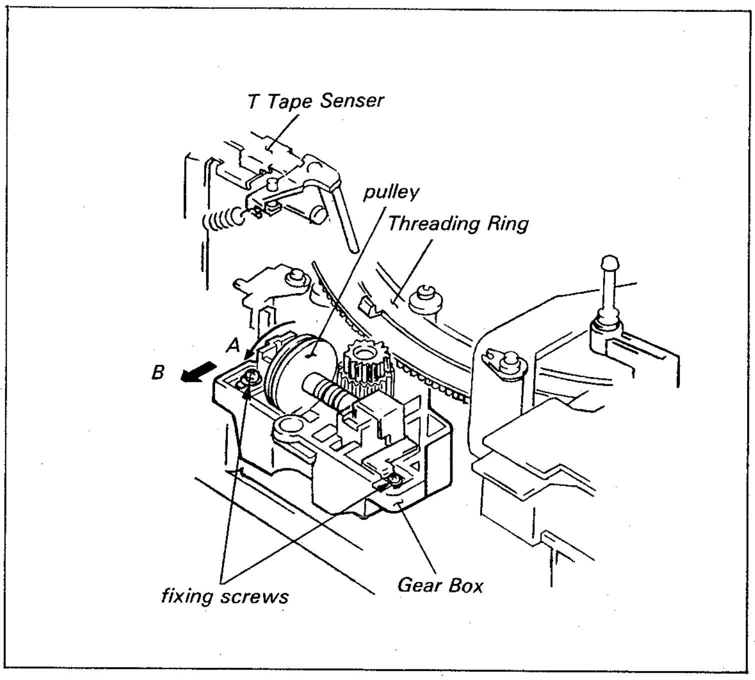


4-10. REPLACEMENT OF THE THREADING GEAR BOX SYSTEM

4-10-1. Replacement of the Threading Gear Box

Replacement procedure:

(1) Put the unit into the EJECT mode and turn the power OFF.
(2) Remove the T Tape Sensor from the gear box after removing the fixing screw.
(3) Remove the two fixing screws of the gear box after turning the pulley 1 revolution in the direction of arrow A. Move the gear box in the direction of arrow B and remove it from the unit.
(4) Remove the harness from the clamper and disconnect CN511 from the SY-141C Board.
(5) Replace the gear box with a new one.
(6) Perform steps (3) and (4) in reverse order.
(7) Put the gear box on the chassis and thread the two fixing screws snugly but do not tighten them. Tighten the two fixing screws of the gear box after peshing the Threading Ring to the gear.
(8) Adjust as described in Section 4-11.



4-10-2. Replacement of the Threading Motor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

(1) Perform steps (1) to (4) of Section 4-10-1, Replacement of the Threading Gear Box.

(2) Remove the gear after removing the stop ring.

(3) Remove the belt from the motor pulley. Remove the plate from the frame after removing the fixing screw.

(4) Remove the pulley while pushing the hook in the direction of the arrow as shown in the figure.

(5) Remove the motor block from the frame after removing the two fixing screws.

(6) Loosen the set screw and remove the motor pulley.

(7) Remove the motor from the motor bracket after removing the two fixing screws.

(8) Remove the shield case and unsolder the LM-13 Board. Replace the motor with a new one.

(9) The pole of the motor is as shown in the figure. Solder the plus terminal of the motor to the plus mark of the LM-13 Board.

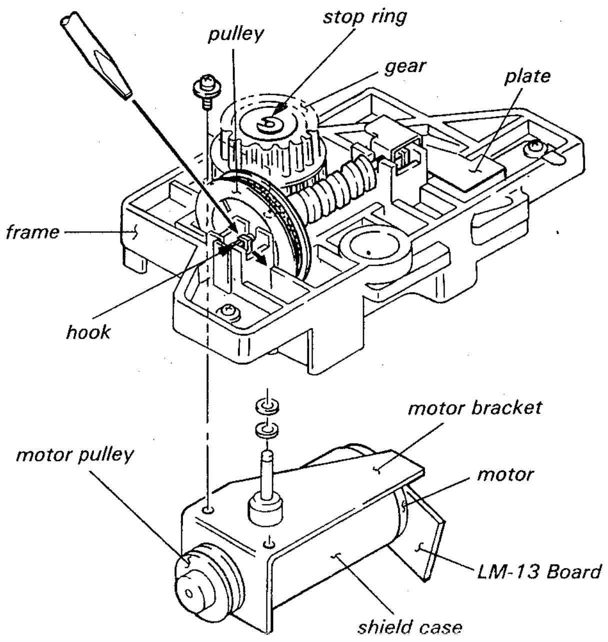
(10) Install the shield case to the motor.

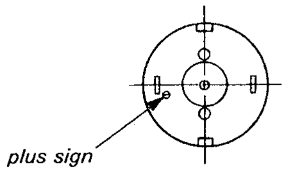
(11) Install the motor to the frame as shown in the figure. Peform steps (4) to (6) in reverse order. Check that the clearance between the motor pulley and the bracket meets the required specification.

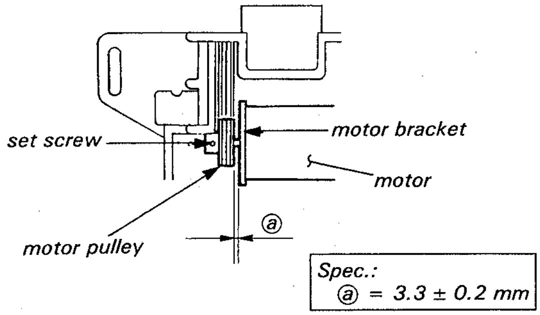
(12) Hook the belt to the pulley and install the pulley on the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

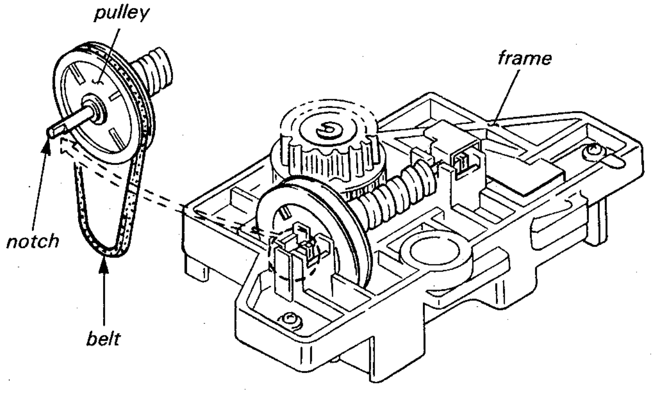
(13) Hook the belt to the motor pulley. Check that the belt is not twisted.

(14) Adjust as described in Section 4-11.


stop ring
pulley
gear
plate
frame
hook
motor bracket
motor pulley
motor
LM-13 Board
shield case




set screw
motor bracket
motor
motor pulley
ⓐ
Spec.:
ⓐ = 3.3 ± 0.2 mm


pulley
frame
notch
belt

4-10-3. Replacement of the Threading Belt

Replacement procedure:

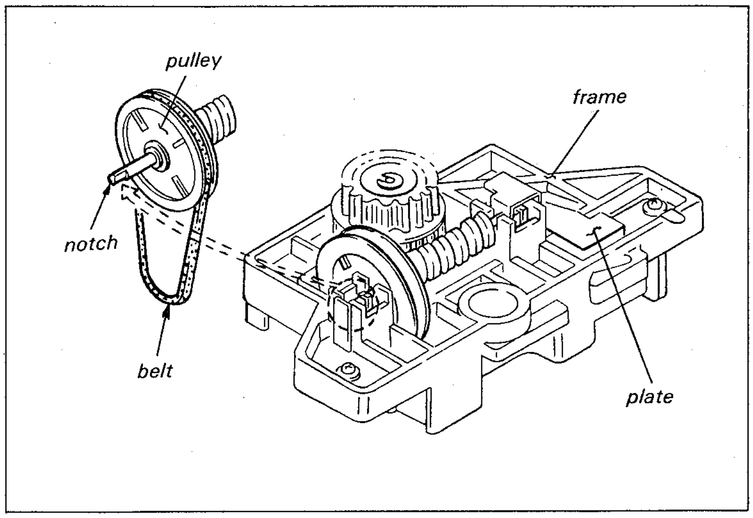
(1) Perform steps (1) to (3) in Section 4-10-2, Replacement of the Threading Motor.

(2) Clean the new belt and the groove of the pulley with a cloth moistened with cleaning fluid.

(3) Hook the belt to the pulley and install them to the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

(4) Install the plate to the frame and hook the belt to the Motor pulley. Check that the belt is not twisted.

(5) Adjust as described in Section 4-11.



4-11. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Nambers in parenthesis refer to Section Nos.)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (5-3-1) → Gear Box Installing Position Adjustment (5-3-2) → FR Detector Block Installing Position Adjustment (5-3-4) → Pinch Roller Self Alignment Adjustment (5-3-3) → Pinch Lever Azimuth Adjustment (5-10) → Pinch Lever Pre set Adjustment (5-4-1) → Pinch Roller Pre set Adjustment (5-4-2) → Leaf Spring Position Adjustment (5-9) → F FWD/REW Modes Tape Path Adjustment (7-1) → T Correction Guide Slantness Adjustment (7-2) → Tape Path Adjustment Around Pinch Roller (7-7) → PLAY Mode Tape Path Adjustment (1) (7-4) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Video Tracking Adjustment (7-8-1) → Time Code Head Adjustment (7-3) → CTL PB Head Height/Azimuth/Zenith Adjustments (7-8-3) → Audio/CTL Head Position Adjustment (7-8-8) → Time Code Head Position Adjustment (7-8-10) → Video Tracking Adjustment (check) (7-8-1)

Replacement of Pinch Roller

Pinch Roller Self Alignment Adjustments (5-3-3) → Pinch Roller Pre set Adjustment (5-4-2) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Tape Path Adjustment Around Pinch Roller (7-7) → Video Tracking Adjustment (check)(7-8-1)

Replacement of Take-up Reel Table

Reel Table Height and Vertical Play Adjustments (5-1-2) → T Brake Torque Adjustment (6-1-2) → REW Brake Torque Adjustment (6-1-3) → F FWD/REW Torque Adjustment (6-2) → FWD Torque Adjustment (6-3) → F FWD/REW Modes Tape Path Adjustment (7-1)

Replacement of Supply Reel Table

Reel Table Height and Vertical Play Adjustments (5-1-2) → S Brake Torque Adjustment (6-1-1) → F FWD/REW Torque Adjustment (6-2) → REV Torque Adjustment (6-4) → FF Back Tension Adjustment (6-5) → FWD Back Tension Adjustment (6-6) → Video Tracking Adjustment (check) (7-8-1)

Replacement of Brake Band

FF Back Tension Adjustment (6-5) → FWD Back Tension Adjustment (6-6)

Replacement of Capstan Motor

Pinch Lever Azimuth Adjustment (5-10) → Pinch Roller Self Alignment Adjustment (5-3-3) → Capstan Search Speed Adjustment → Capstan FWD/REV Detector Adjustment → Capstan Free Speed Adjustment → Capstan Stop Servo Adjustment → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Tape Path Adjustment Around Pinch Roller (7-7) → Video Tracking Adjustment (check)(7-8-1)

Replacement of Threading Gear Box, Threading Motor and Threading Belt

Gear Box Installing Position Adjustment (5-3-2)

Replacement of Reel Motor

FWD Torque Adjustment (6-3) → REV Torque Adjustment (6-4)

Replacement of CTL PB Head

CTL PB Head Height/AZimuth/Zenith Adjustments (7-8-3) → Video Tracking Adjustment (check) (7-8-1)

Replacement of Audio/CTL Head

Audio Head Height Adjustment (7-8-4) → Audio Head Azimuth Adjustment (7-8-6) → Video Tracking Adjustment (7-8-1) → Audio Head Height Adjustment (7-8-4) → Audio Head Azimuth Adjustment (7-8-6) → Audio Head Phase Adjustment (7-8-7) → Audio/CTL Head Position Adjustment (7-8-8) → Time Code Head Position Adjustment (7-8-10) → Audio System Alignment (all of Section 10)

Replacement of Drum Assembly

Tracking Adjustment (7-8) → F FWD/REW Modes Tape Path Adjustment (7-1) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Video Head Dihedral Adjustment (7-9) → Drum AFC Level Adjustment → Drum AFC Transient Adjustment → Switching Position Adjustment

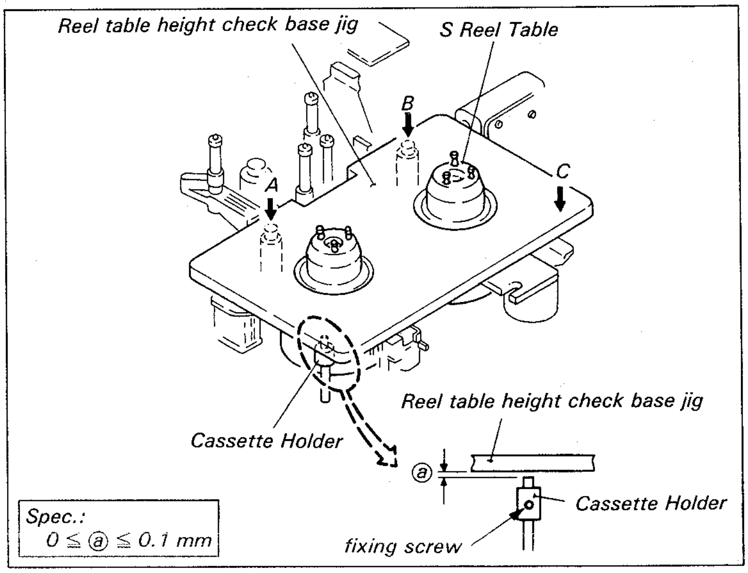
Replacement of Upper Drum Assembly

Replacement of Upper Drum (4-1) → Tracking Adjustment (7-8) → F FWD/REW Modes Tape Path Adjustment (7-1) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Video Head Dihedral Adjustment (7-9) → PB RF Amplifier Adjustment

SECTION 5
LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE SYSTEM ADJUSTMENT

5-1-1. Cassette Holder Position Adjustment


Reel table height check base jig
S Reel Table
B
A
C
Reel table height check base jig
Cassette Holder
ⓐ
Cassette Holder
fixing screw

Spec.:
0 ≤ ⓐ ≤ 0.1 mm

Tool: Reel table height check base jig
Thickness gauge
L-shaped hexagonal wrench
(across flat has 1.27 mm)

Mode: EJECT completion

Check procedure:

(1) While lightly pushing the Reel Table Height Check Base Jig marked (A), (B) and (C) toward the chassis, check that the clearance between the base jig and the cassette holder meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Cassette Holder to meets the required specification.

5-1-2. Reel Table Height and Vertical Play Adjustments

. The height of the reel table is the reference for the tape threading system and the tape path system. This Adjustment should be performed very carefully.

Tool: Reel table height check base jig
Reel table height check jig
Slide vernier callipers or equivalent

Mode: EJECT completion

Check procedure:

(1) The probes of the Reel Table Height Check Jig marked "SO" and "TO" can slide over the reel table, leaving a clerarnce between the jig and the reel table. The probes marked "SX" and "TX" meet the flange and cannot slide over the reel table.
- Use the "SO" and "SX" probes for the Supply Reel Table.
- Use the "TO" and "TX" probes for the Take-up Reel Table.

(2) After tighten the fixing screw of the top of the reel table, push up and press down the reel table. Check that the vertical play meets the required specification.

Adjustment procedure:

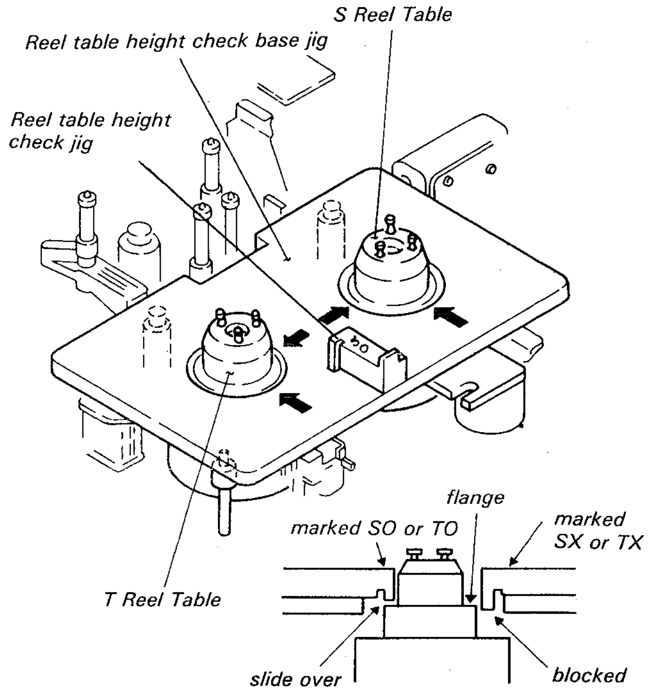
(1) Place the washer under the reel table and adjust the height of the reel table.

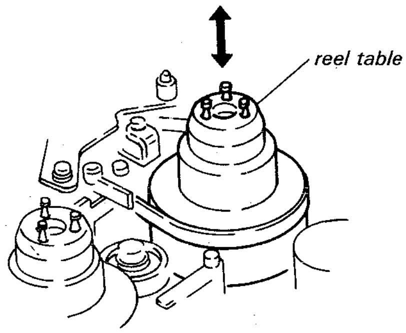
(2) Place the washer on the reel table and adjust the vertical play of the reel table.

NOTE : When the reel table is removed and its height is adjusted with a washer, drop a drop of Sony oil on the reel shaft. (A drop of Sony oil is the amount that is scooped by a 2 mm dia. twing as shown in the figure.)

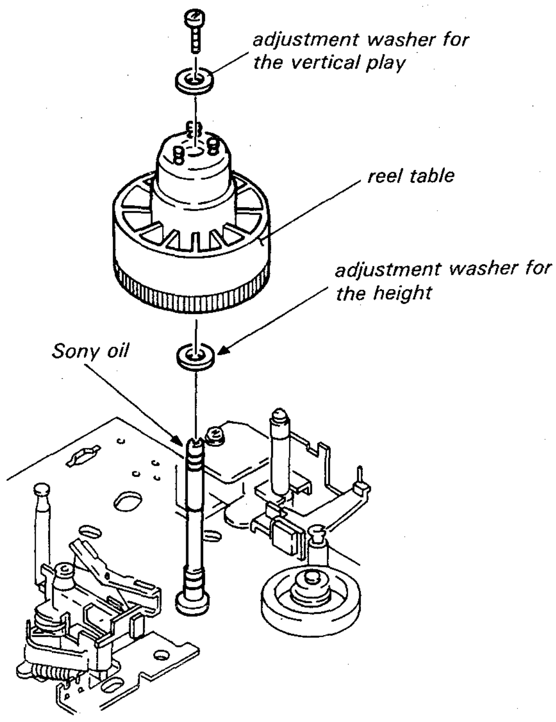
- Adjustment poly-slider washer:

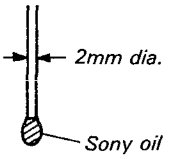
3-645-567-11	6 mm dia.	0.05 mm thick
3-701-444-01	6 mm dia.	0.13 mm thick
3-701-444-11	6 mm dia.	0.25 mm thick
3-701-444-21	6 mm dia.	0.5 mm thick





Spec.: vertical play
0.17 mm ~ 0.38 mm


adjustment washer for the vertical play
reel table
adjustment washer for the height
Sony oil


2mm dia.
Sony oil

5-2. T DRAWER ARM ADJUSTMENT

5-2-1. T Drawer Arm EJECT Position Adjustment

Mode: Put the unit into the FR-STOP mode without a cassette tape. And then put the unit inot the EJECT completion mode.

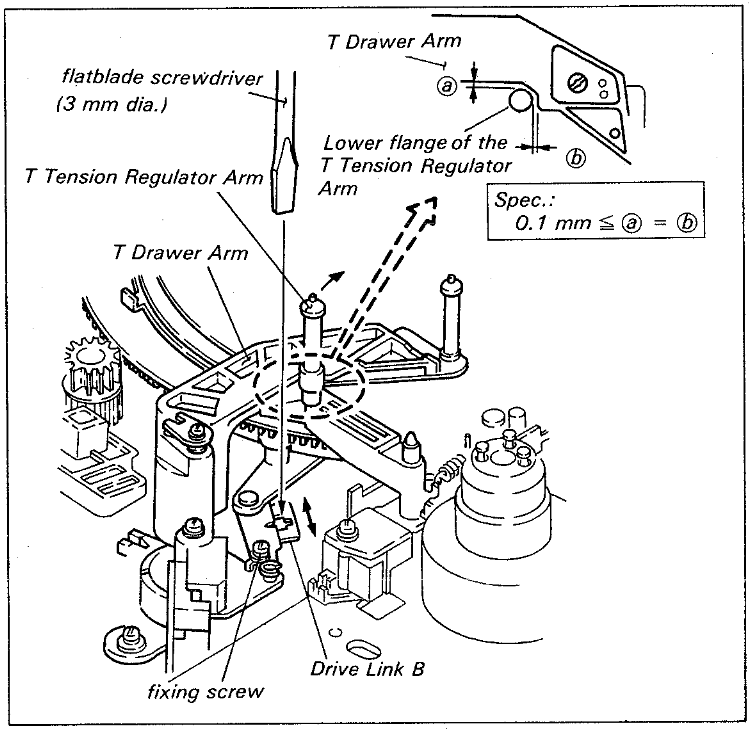
Check procedure:

(1) Push the T Tension Regulator Arm in the direction of the arrow as far as it will go, and remove the finger gently.

(2) Check that the clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Drive Link (B) Ass'y with a flatblade screwdriver (3mm dia.) to meets the required specification.


T Drawer Arm
flatblade screwdriver
(3 mm dia.)
ⓐ
Lower flange of the
T Tension Regulator
Arm
ⓑ
T Tension Regulator Arm
Spec.:
0.1 mm ≦ ⓐ = ⓑ
T Drawer Arm
Drive Link B
fixing screw

5-2-2. Unthread-end Switch Position Adjustment

Tool: Black vinyl tape
(1 cm x 1.5 cm)

Preparation:

(1) Put the unit into the FR-STOP mode and turn the power OFF.

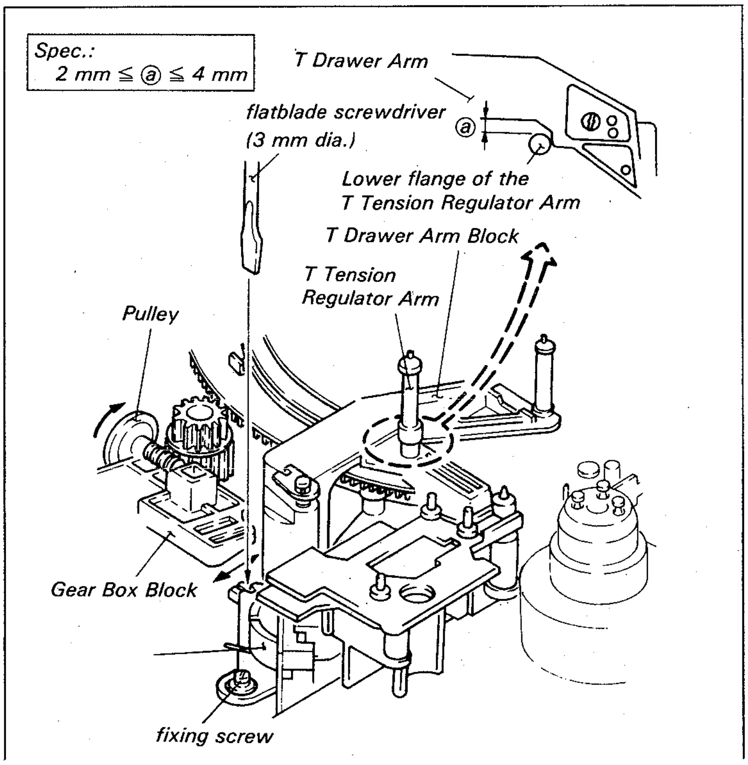
(2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.

(3) Remove the FR Detector Block and cover the D2 photointerrupter (FR-UNTHREAD END Detector) with the black vinyl tape. (The FR Detector is put into the FR-STOP mode.)

Check procedure:

(1) Turn the power ON and rotate the pulley of Gear Box Block in the clockwise direction by hand.

(2) When the T Brake Solenoid is energized (click sound heard), check that the positional relationship of the T Drawer Arm and the T Tension Regulator Arm meet the specification as shown in the figure.


Spec.:
2 mm ≦ ⓐ ≦ 4 mm
T Drawer Arm
flatblade screwdriver
(3 mm dia.)
ⓐ
Lower flange of the
T Tension Regulator Arm
T Drawer Arm Block
T Tension
Regulator Arm
Pulley
Gear Box Block
fixing screw

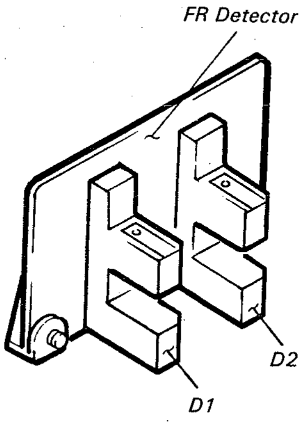
Adjustment procedure:

(1) Adjust the position of the Photointerrupter Holder with a flatblade screwdriver (3mm dia.) to meet the required specification.

(2) Turn the power OFF and install FR Detector Block after peeling off the black vinyl tape.

(3) Perform Section 5-3-4, FR Detector Block Installing Position Adjustment.

(4) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-3. THREADING SYSTEM ADJUSTMENT

5-3-1. Threading Ring Rotation Adjustment

- This adjustment is required only when the Threading Ring is replaced or removed.
- If the Threading Ring is adjusted to have a narrower clearance, the ring rotation becomes sluggish. If adjusted to have a wider clearance, tape run during threading, FWD, and REV modes will be unstable.

Mode: Check mode: EJECT completion/
Threading/Unthreading
Adjustment mode: EJECT completion

Check procedure:

(1) Put the unit into the EJECT completion mode. Check that the horizontal play meets the required specification when the Thteading Ring is pushed in the direction of the arrow.

(2) Check that the rotation of the Threading Ring during the Threading and Unthreading modes is smooth.

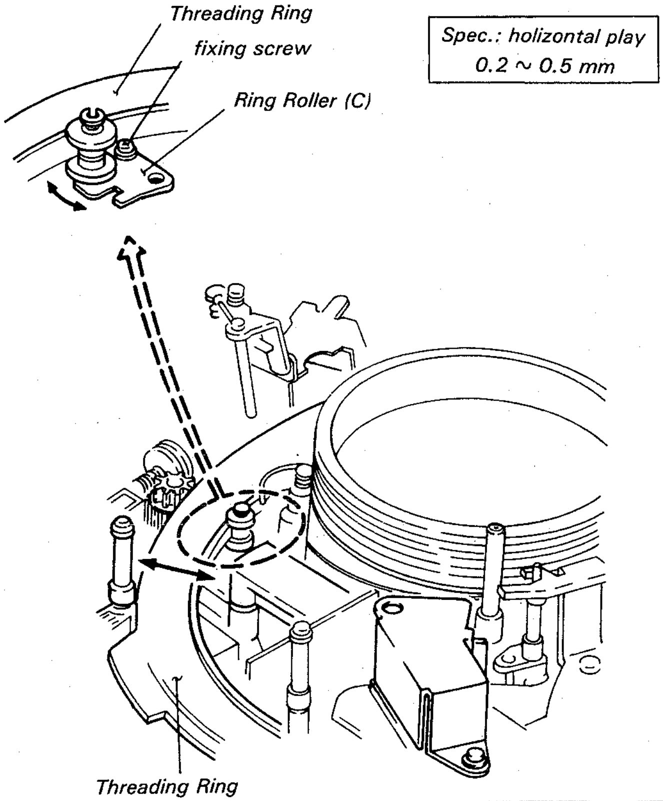
Adjustment procedure:

(1) Put the unit into the EJECT completion mode.

(2) Adjust the position of the Ring Roller (C) to meet the required specification.

Reference:

- Insert a 0.3 mm thick piece of paper between the Threading Ring and the Ring Roller (C).
- Three pages of this service manual are 0.3 mm thick.



5-3-2. Gear Box Installing Position Adjustment

- It is required that Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Put the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

(1) Put the unit into the EJECT completion mode and then turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

(2) Mark two lines on the top surface of the gear with a black felt tip pen. (Two lines are easy to see during the adjustment.)

(3) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

(4) Check that the relationship between the outer circumference of the Threading Ring and the Gear meets the required specification.

Adjustment procedure:

(1) Open the DM-72 Board.

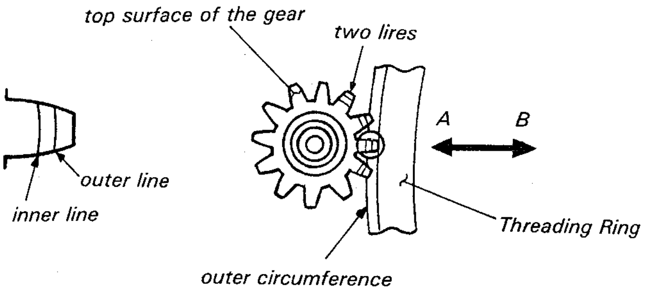
(2) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

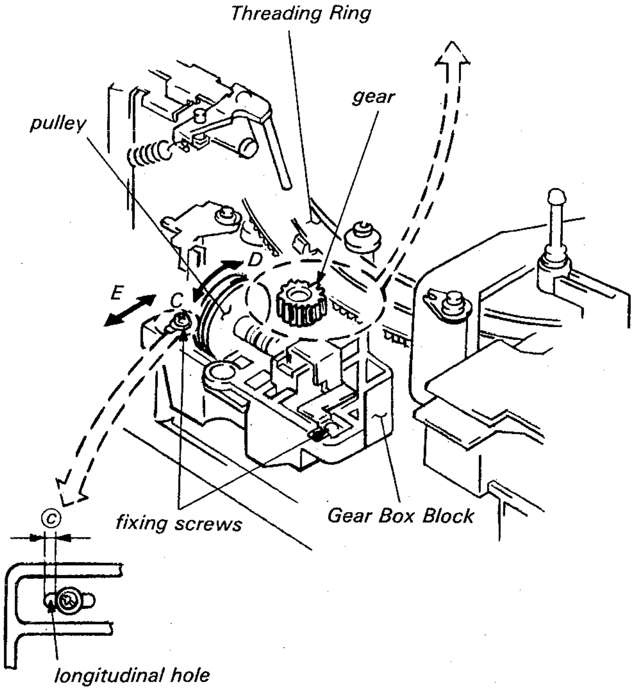
(3) Move the Gear Box in the direction of arrow E to meet the required specification.

(4) Check that Section 5-3-1, Threading Ring Rotation Adjustment meets the required specification.

(5) Check that © meets the required specification at the longitudinal hole of the gear block as shown in the figure.

Spec.:
(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is between two lines of the gear.


top surface of the gear
two lires
A
B
outer line
inner line
Threading Ring
outer circumference


Threading Ring
gear
pulley
D
E
C
©
fixing screws
Gear Box Block
longitudinal hole

Spec.:
0.1 mm ≦ © ≦ 1.5 mm

5-3-3. Pinch Roller Self Alignment Adjustment

. If this adjustment is incorrect, the position and the slantness of the Pinch Roller will not be correct when the Pinch Roller is pressed against the Capstan Shaft. Incorrect adjustment will cause a tape to be damaged.

Mode: PLAY mode without a cassette tape

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape.

(2) Check that the relationship of Pinch Roller Arm (A) and Pinch Roller Arm (B) meets the required specification.

Adjustment procedure:

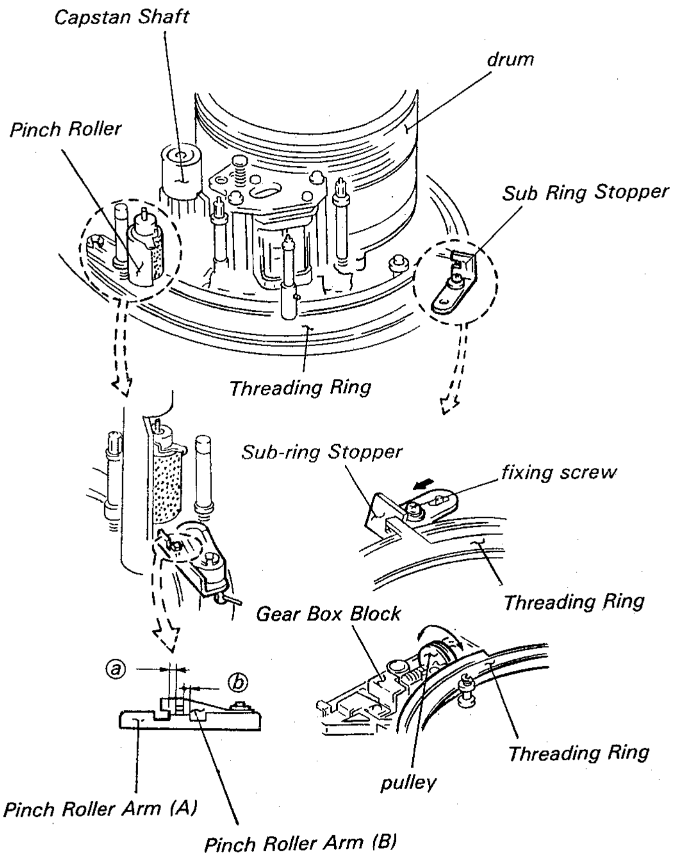
(1) Put the unit into the PLAY mode without a cassette tape.

(2) Loosen the fixing screw in the Sub-ring Stopper.

(3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification.

(4) Push the Sub-ring Stopper gently in the direction of the arrow and tighten the fixing screw.

(5) Put the unit into the EJECT completion mode and then perfomn the check procedure.


Capstan Shaft
drum
Pinch Roller
Sub Ring Stopper
Threading Ring
Sub-ring Stopper
fixing screw
Threading Ring
Gear Box Block
ⓐ
ⓑ
Threading Ring
pulley
Pinch Roller Arm (A)
Pinch Roller Arm (B)

Spec.:
There are clearances ⓐ and ⓑ.

5-3-4. FR Detector Block Installing Position Adjustment

. It is required that the Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Threading completion mode

Adjustment procedure:

(1) Put the unit into the Threading completion mode and turn the power OFF.

(2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.

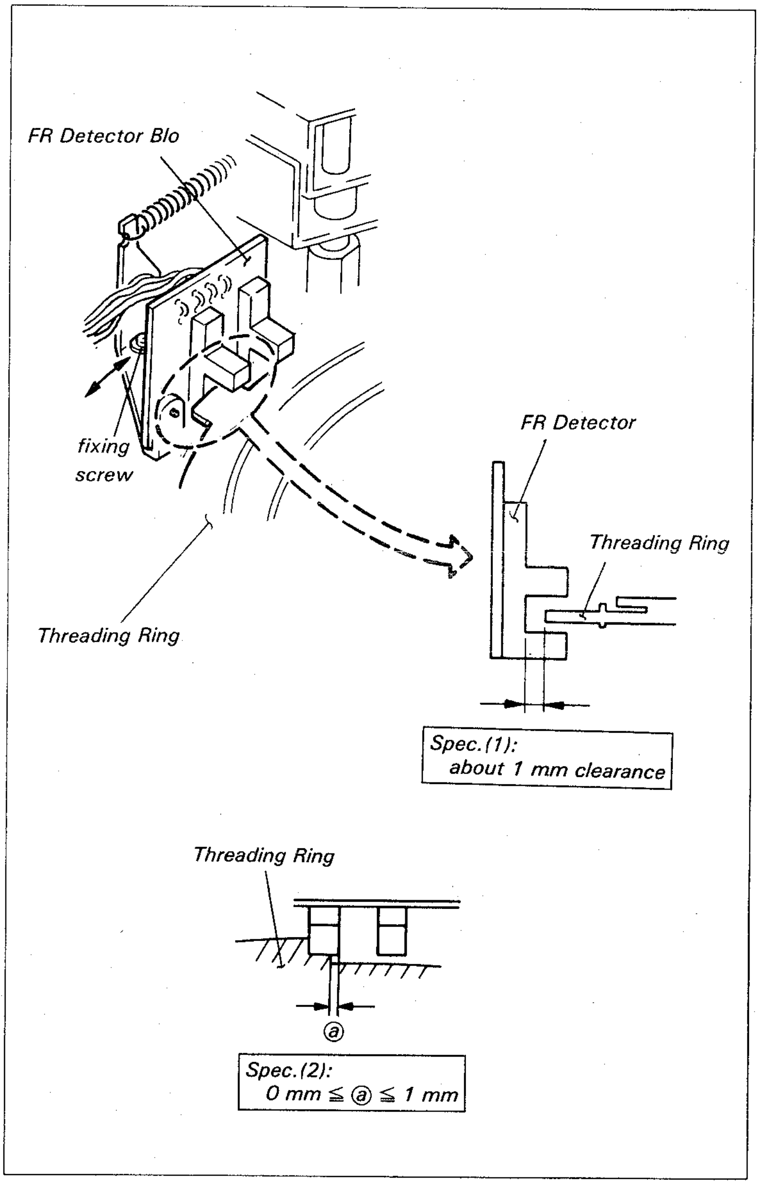
(3) Loosen the fixing screw of the FR Detector block 1/4 to 1/2 turn.

(4) Press the FR Detector Block against the Threading Ring, and reverse it about 1mm. (Do not reverse it more than 1.5mm) (Spec.1)

(5) Move the FR Detector Block in the direction of the arrow to meet the required specification 2.

(6) Check that the clearance meets the required specification 1.

(7) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.


FR Detector Blo
fixing screw
Threading Ring
FR Detector
Threading Ring
Spec.(1): about 1 mm clearance
Threading Ring
ⓐ
Spec.(2): 0 mm ≦ ⓐ ≦ 1 mm

5-4. PINCH LEVER BLOCK ADJUSTMENT

5-4-1. Pinch Lever Preset Adjustment

. It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Mode: Turn the power OFF in the PLAY mode

Check procedure:

(1) Open the RP-40C Board.

(2) Put the unit into the PLAY mode and turn the power OFF. Check that the position of the Pinch Solenoid Pin meets the required specification.

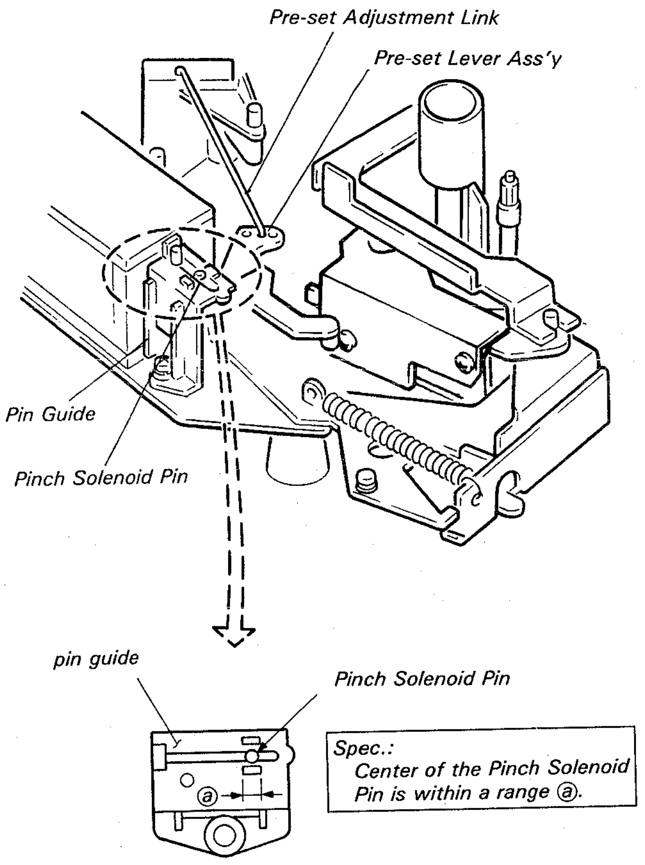
(3) Turn the power ON and press the PLAY button. After unthreading is complete, check as described in step (1).

Adjustment procedure:

(1) Adjust the position of the Pinch Solenoid to meet the required specification, refering to Section 5-7-4, Pinch Solenoid Installing Position Adjustment.

(2) If the specification in Step (1) cannot be obtained, adjust the position of the Sub-ring Stopper to meet the required specification, refering to Section 5-3-3, Pinch Roller Self Alignment Adjustment.

(3) If the specification in Steps (1) and (2) cannot be obtained, insert the Pinch Lever Preset Adjustment Link into the appropriate hole of the Preset Lever Ass'y to meet the required specification. Perform Steps (1) and (2) again.



Spec.:
Center of the Pinch Solenoid Pin is within a range ⓐ.

5-4-2. Pinch Roller Preset Adjustment

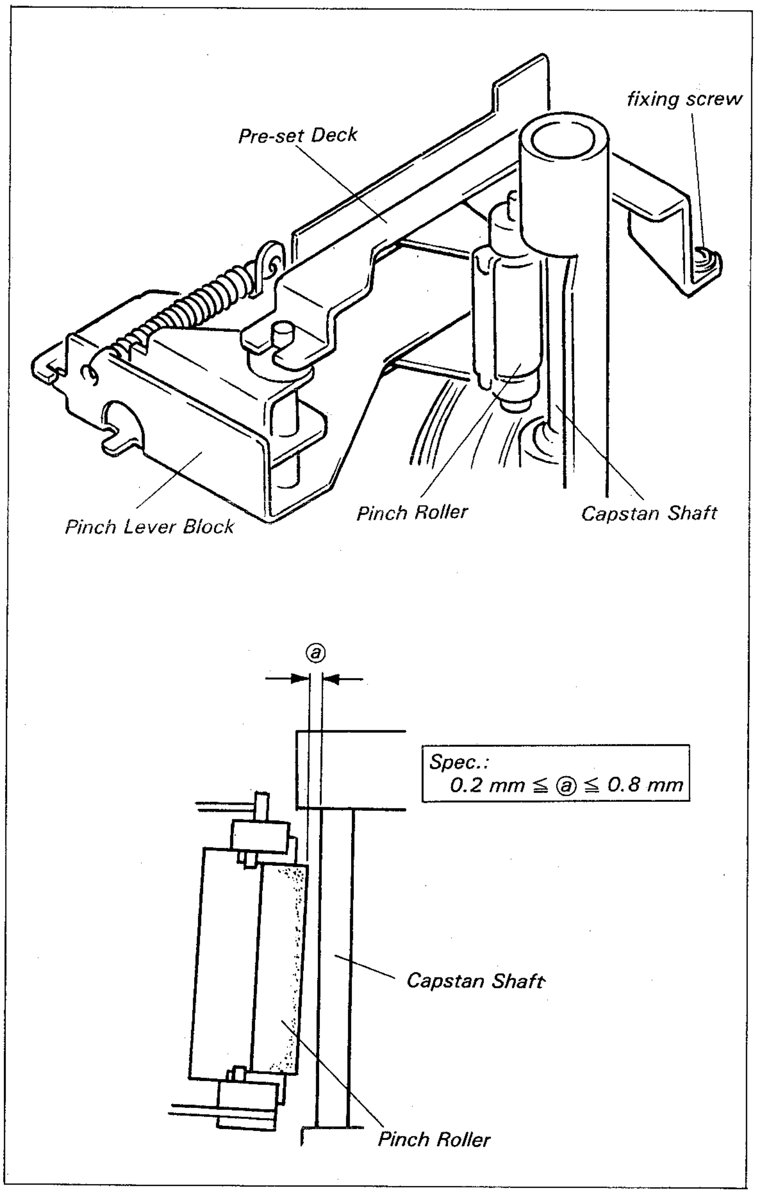
It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Tool: Thickness gauge
Mode: PLAY mode
Check procedure:

(1) Check that the clearance between the Pinch Roller and Capstan Shaft meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Pre-set Deck to meet the required specification.
(2) Repeat the Threading/Unthreading modes two or three times and check that it meet the required specification.


fixing screw
Pre-set Deck
Pinch Lever Block
Pinch Roller
Capstan Shaft
ⓐ
Spec.:
0.2 mm ≦ ⓐ ≦ 0.8 mm
Capstan Shaft
Pinch Roller

5-4-3. Pinch Solenoid Block Position Adjustment

Tool: Thickness gauge

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

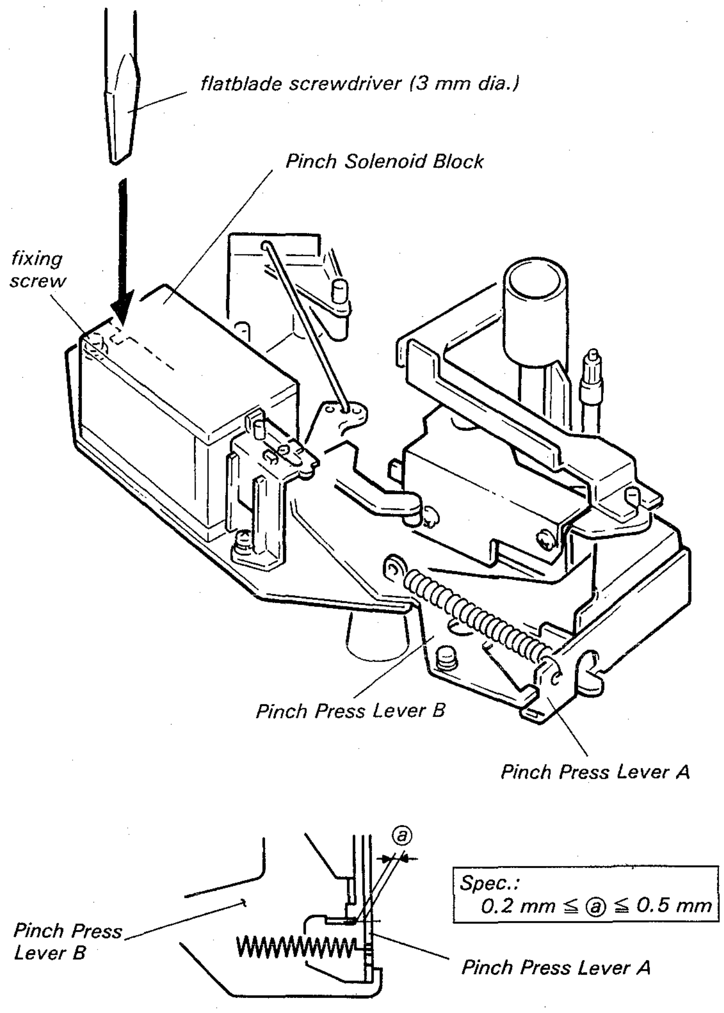
(2) Check that the clearance between Pinch Press Lever A and B meets the required specification.

(3) Repeat the Unthreading/Threading modes two or three times and check as described in step (2).

Adjustment procedure:

(1) Put the unit into the PLAY mode. Adjust the position of the Pinch Solenoid Block with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(2) Perfom the check procedures (2) and (3).


flatblade screwdriver (3 mm dia.)
Pinch Solenoid Block
fixing screw
Pinch Press Lever B
Pinch Press Lever A
ⓐ
Pinch Press Lever B
Pinch Press Lever A

Spec.:
0.2 mm ≦ ⓐ ≦ 0.5 mm

5-5. T TAPE SENSOR POSITION ADJUSTMENT

- There are two adjustments in this section. The first is the height adjustment and the second is the adjustment of the clearance between the tape and LED.

Tool: Thickness gauge

Mode: PLAY and FR-STOP modes with a cassette tape

Check procedure:

(1) Insert the cassette tape and put the unit into the FR-STOP mode. Push the tape by hand as shown in the figure. Check that the clearance between top edge of the tape and bottom side of the T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))

(2) Put the unit into the PLAY mode.

(3) As viewed from the top of the unit, check that the ※※ of the T Tape Sensor Block is above the upper flange of the T Drawer Arm (within the range "A"). (Spec. (2))

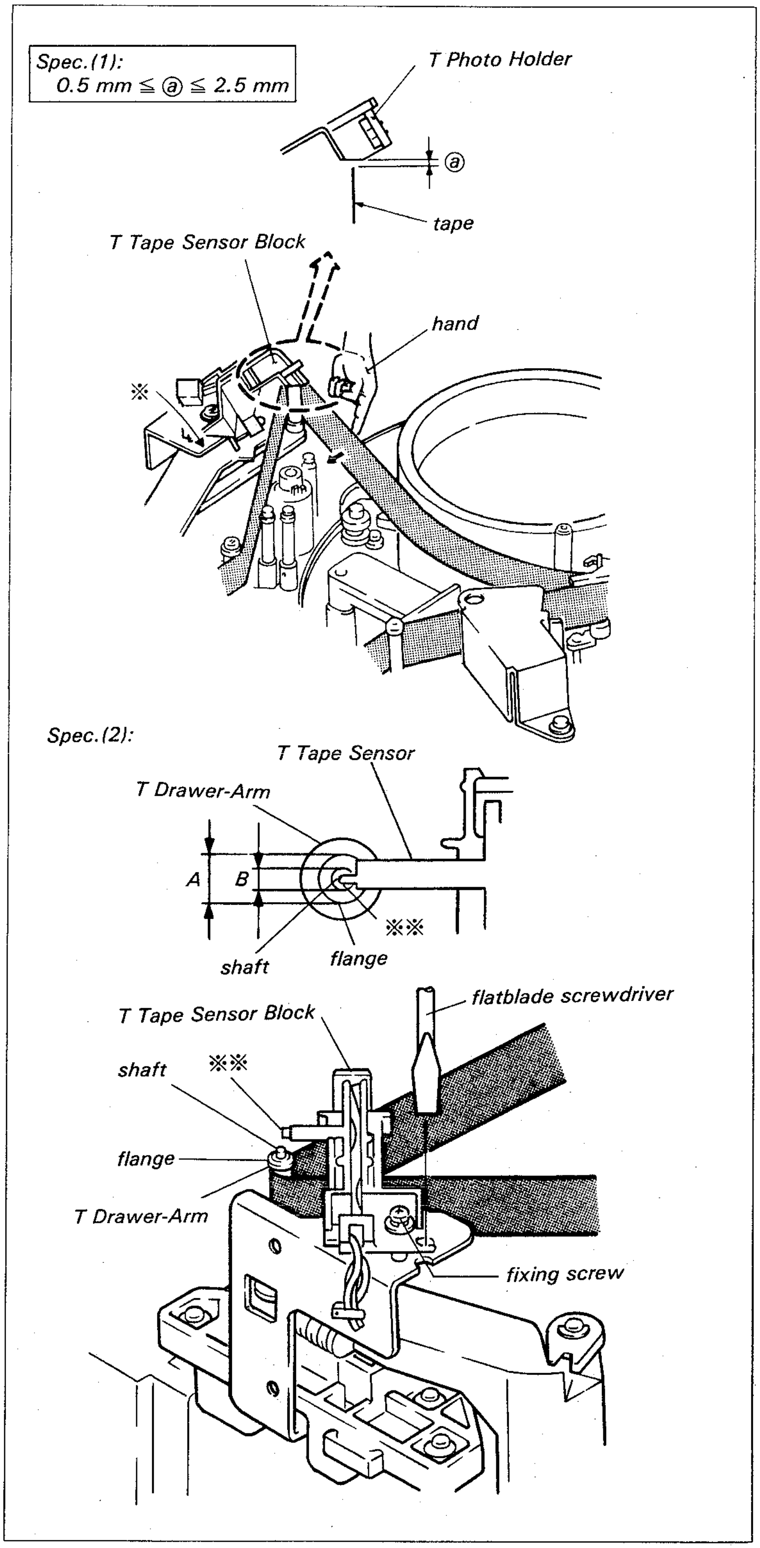
Adjustment procedure:

(1) Bend the ※ with a pliers to meet the required specification (1). Perfom check procedures (2) and (3).

(2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.

(3) As viewed from the top of the unit in the PLAY mode, adjust the position of the T Tape Sensor Block with a flatblade screwdriver so that the ※ ※ of the T Tape Sensor Block is above the shaft of the T Drawer Arm (within the range "B").

(4) Check that it meets the required specification (1).


Spec.(1):
0.5 mm ≦ ⓐ ≦ 2.5 mm
T Photo Holder
ⓐ
tape
T Tape Sensor Block
hand
※
Spec.(2):
T Tape Sensor
T Drawer-Arm
A
B
※※
shaft
flange
T Tape Sensor Block
flatblade screwdriver
shaft
※※
flange
T Drawer-Arm
fixing screw

5-6. TENSION ARM SYSTEM ADJUSTMENT

5-6-1. S Drawer Roller Block Limiter Adjustment

Mode: FR-STOP mode

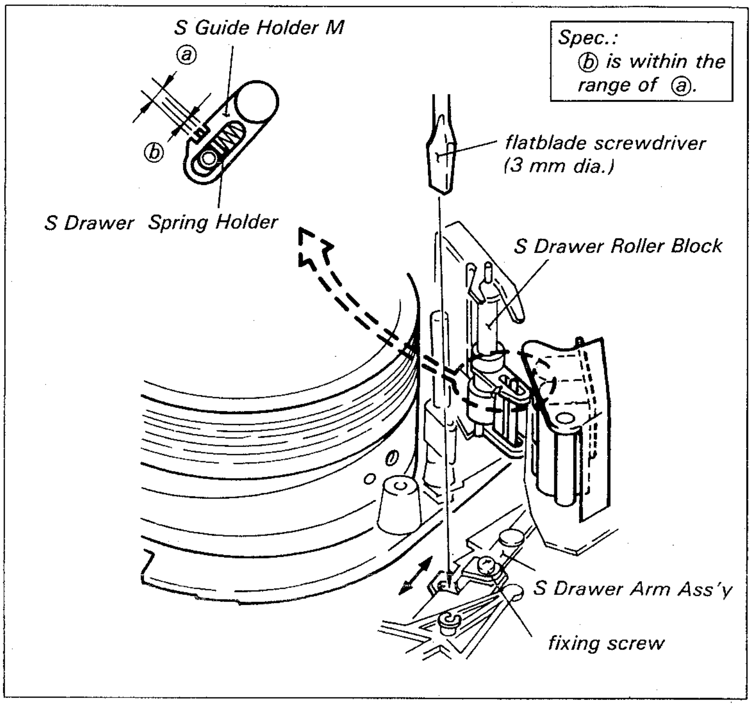
Check procedure:

(1) Check that " b " of the S Drawer Spring Holder in the S Drawer Roller Block fits into notch " a " of the S Guide Holder M.

Adjustment procedure:

(1) Loosen the fixing screw of the S Drawer Arm Ass'y 1/4 to 1/2 turn.

(2) Adjust the position of the S Drawer Arm Ass'y with a flatblade screwdriver (3 mm dia.) to meet the required specification.


S Guide Holder M
ⓐ
ⓑ
S Drawer Spring Holder
Spec.:
ⓑ is within the range of ⓐ.
flatblade screwdriver (3 mm dia.)
S Drawer Roller Block
S Drawer Arm Ass'y
fixing screw

5-6-2. T Tension Regulator Operating Position Adjustment

Mode: FR-STOP mode

Tool: Thickness gauge

Check procedure:

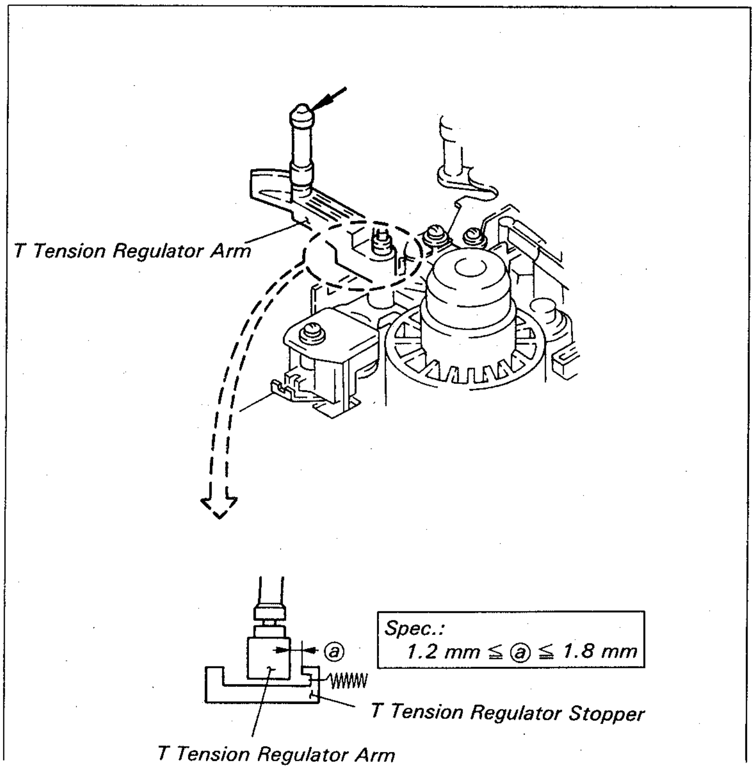
(1) Push the T Tension Regulator Arm in the direction of the arrow and remove the finger gently.

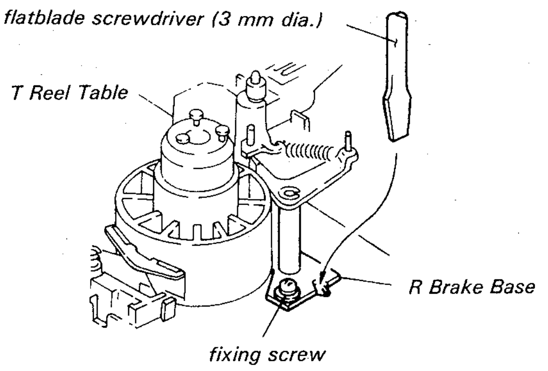
(2) Check that the clearance between the T Tension Regulator Arm and the stopper meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the R Brake Base 1/4 to 1/2 turn.

(2) Adjust the position of the R Brake Base with a flatblade screwdriver (3mm dia.) to meet the required specification.


T Tension Regulator Arm
ⓐ
Spec.:
1.2 mm ≦ ⓐ ≦ 1.8 mm
T Tension Regulator Stopper
T Tension Regulator Arm


flatblade screwdriver (3 mm dia.)
T Reel Table
R Brake Base
fixing screw

5-6-3. S Tension Regulator Operating Position Adjustment

Mode: F-FWD mode

Check procedure:

(1) Put the unit into the FF mode without a cassette tape.

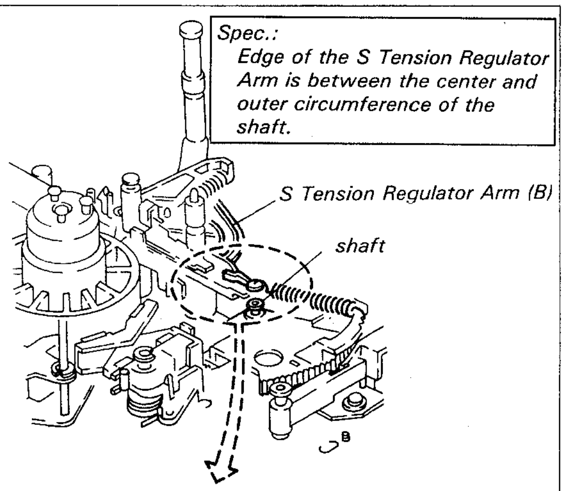
(2) Check that the edge of the S Tension Regulator Arm (B) meets the required specification.

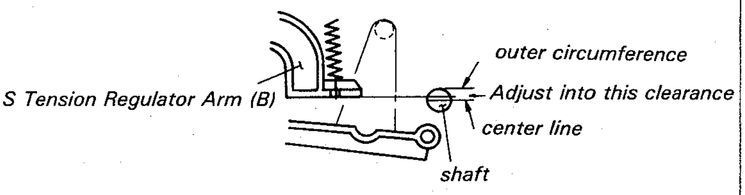
Adjustment procedure:

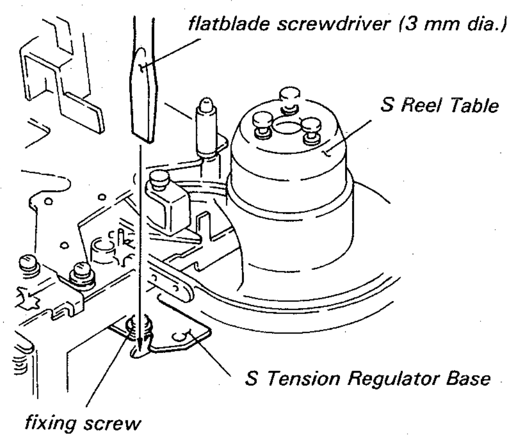
(1) Loosen the fixing screw of the S Tension Regulator Base 1/4 to 1/2 turn.

(2) Adjust the position of the S Tension Regulator Base to meet the required specification.

Spec.:
Edge of the S Tension Regulator Arm is between the center and outer circumference of the shaft.


S Tension Regulator Arm (B)
shaft


outer circumference
S Tension Regulator Arm (B)
Adjust into this clearance
center line
shaft


flatblade screwdriver (3 mm dia.)
S Reel Table
S Tension Regulator Base
fixing screw

5-6-4. Tension Detector Position Adjustment

Tool: DC voltmeter

Mode: FWD / REV mode

Preparation:

(1) Connect the dc voltmeter to TP1 on the SY-141C Board.

Check procedure:

(1) Put the unit into the FWD mode without a cassette tape.

(2) Push the T Tension Regulator Arm to the right with a hand as far as it will go. Check that the dc voltage is more than 8V.

(3) Push the T Tension Regulator Arm to the left with a hand as far as it will go. Check that the dc voltage is less than 2.5V.

(4) Put the unit into the REV mode.

(5) Push the S Tension Regulator to the right with a hand as far as it will go. Check that the dc voltage is less than 2.5 V.

(6) Push the S Tension Regulator to the left with a hand as far as it will go. Check that the dc voltage is more than 8 V.

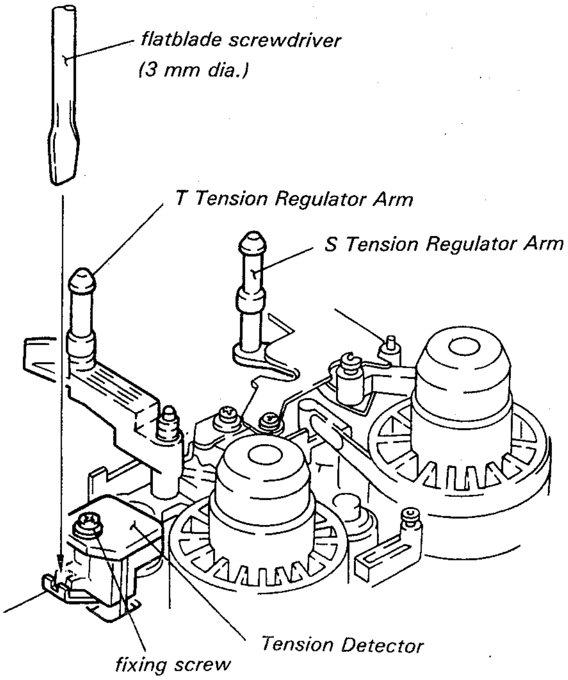
Adjustment procedure:

(1) Remove the FR Detector Block from the unit.

(2) Loosen the fixing screw of the Tension Detector 1/4 to 1/2 turn.

(3) Insert a flatblade screwdriver (3 mm dia) in the notch and adjust the position of the Tension Detector to meet the required specification.

(4) After adjustment, install the FR Detector.



5-6-5. T Tension Regulator Arm Height Adjustment

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Mode: PLAY / F FWD mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the tape runs in the middle of the tape guide in the cassette.

(3) Check that the tape runs in the middle of the T Tension Regulator Arm Guide.

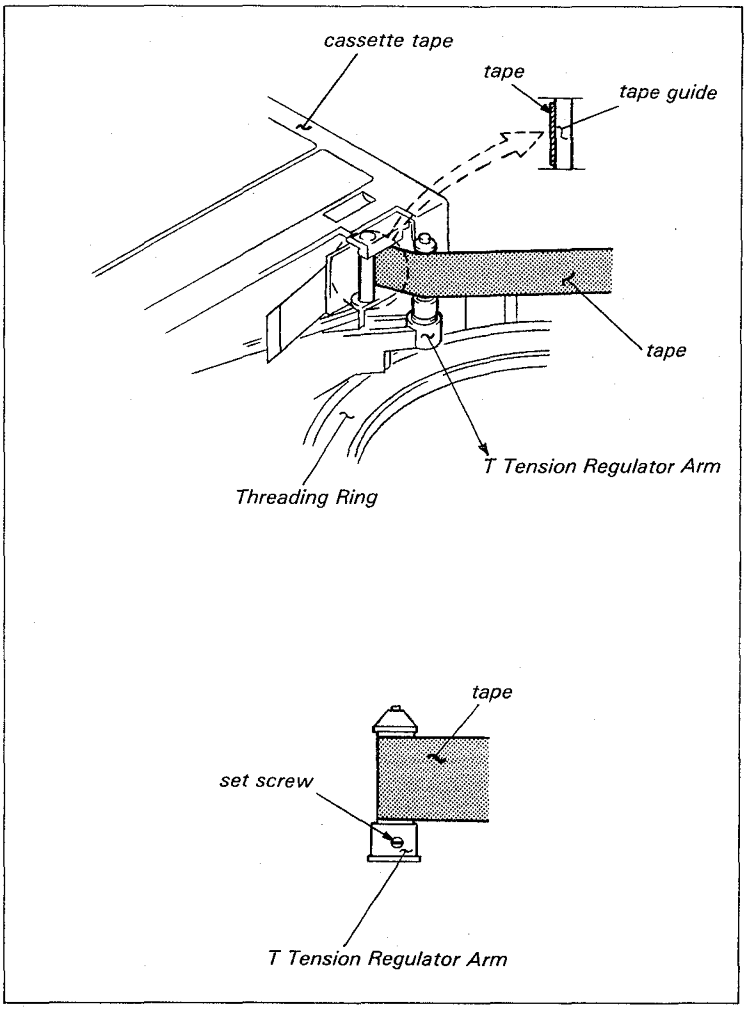
(4) Put the unit into the F FWD mode.

(5) Check as described in steps (2) and (3).

Adjustment procedure:

(1) Loosen the set screw at the lower flange of the T Tension Regulator Arm.

(2) Adjust the height of the T Tension Regulator Arm to meet the required specification.


cassette tape
tape
tape guide
tape
T Tension Regulator Arm
Threading Ring
tape
set screw
T Tension Regulator Arm

5-7. SOLENOID SYSTEM ADJUSTMENT

5-7-1. Search Solenoid Installing Position Adjustment

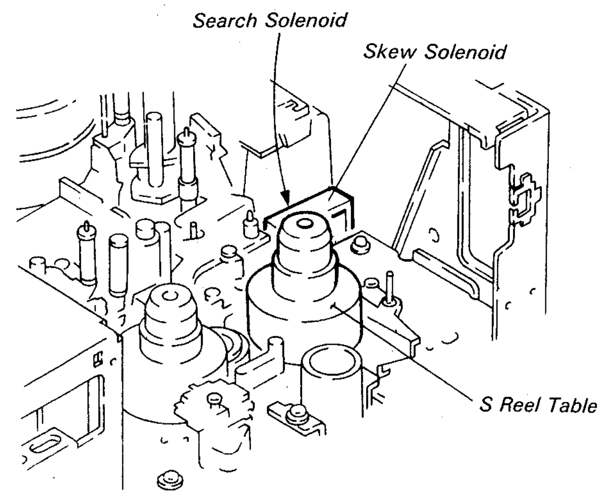
- This adjusment is required only when the search solenoid is replaced or removed.

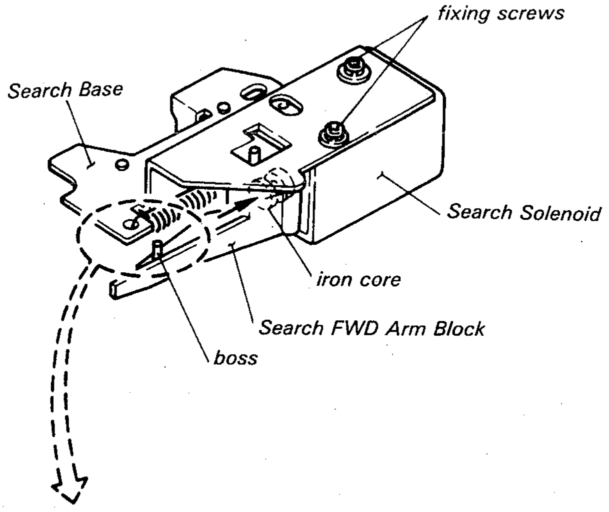
Preparation:

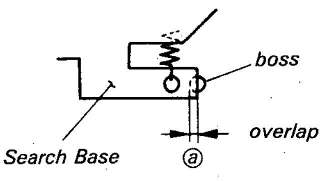
(1) Remove the Search Solenoid Block from the chassis.

Adjustment procedure:

(1) Move the iron core into the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the Search Solenoid so that the overlap of the Search FWD Arm Boss and the Search Base meets the required specification.


Search Solenoid
Skew Solenoid
S Reel Table


fixing screws
Search Base
Search Solenoid
iron core
Search FWD Arm Block
boss


boss
overlap
Search Base
ⓐ

Spec.:
0 mm ≦ ⓐ ≦ 1.0 mm

5-7-2. T Idler Solenoid Position Adjustment

- This adjustment is performed when T Idler Solenoid is replaced or removed, and the F FWD Torque does not meet the required specification.

Mode: F.FWD mode without a cassette tape

Adjustment procedure:

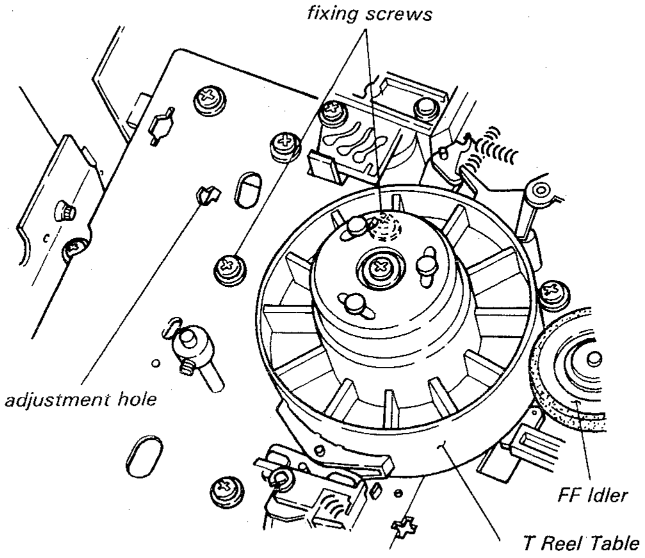
(1) Put the unit into the F FWD mode without a cassette tape.

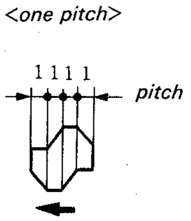
(2) Loosen the fixing screws of the T Idler Solenoid about 1/2 turn.

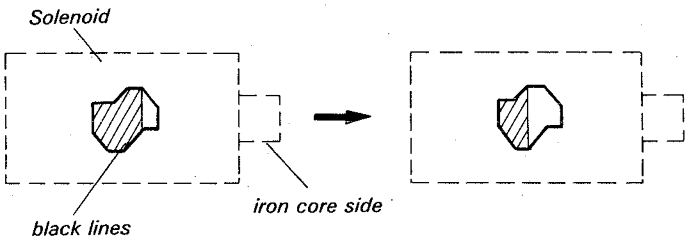
(3) Adjust the position of the T Idler Solenoid until the clearance between the T Reel Table and FF Idler become 0.01 to 0.1 mm.

(4) Note the adjustment hole and check that the black line of the solenoid is in this hole.

(5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.


fixing screws
adjustment hole
FF Idler
T Reel Table




Solenoid
iron core side
black lines

5-7-3. S Idler Solenoid Position Adjustment

- This adjustment is required only when the S Idler Solenoid is replaced or removed, and the REW Torque does not meet the required specification.

Mode: REW mode without a cassette tape

Adjustment procedure:

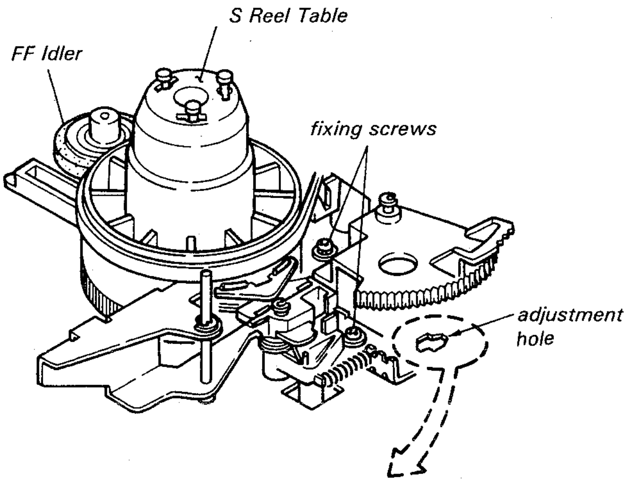
(1) Put the unit into the REW mode without a cassette tape.

(2) Loosen the fixing screws of the S Idler Solenoid about 1/2 turn.

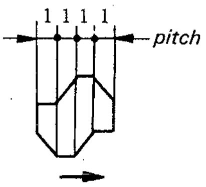
(3) Adjust the position of the S Idler Solenoid until the clerance between the S Reel Table and FF Idler become 0.01 to 0.1 mm.

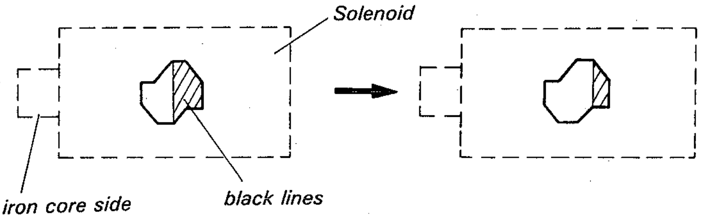
(4) Note the adjustment hole and check that the black line of the solenoid is in this hole.

(5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.


S Reel Table
FF Idler
fixing screws
adjustment hole

<one pitch>




Solenoid
iron core side
black lines

5-7-4. Pinch Solenoid Installing Position Adjustment

- This adjustment is required only when the Pinch Solenoid is replaced or removed.

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the outer circumference of the Solenoid Pin meets the required specification.

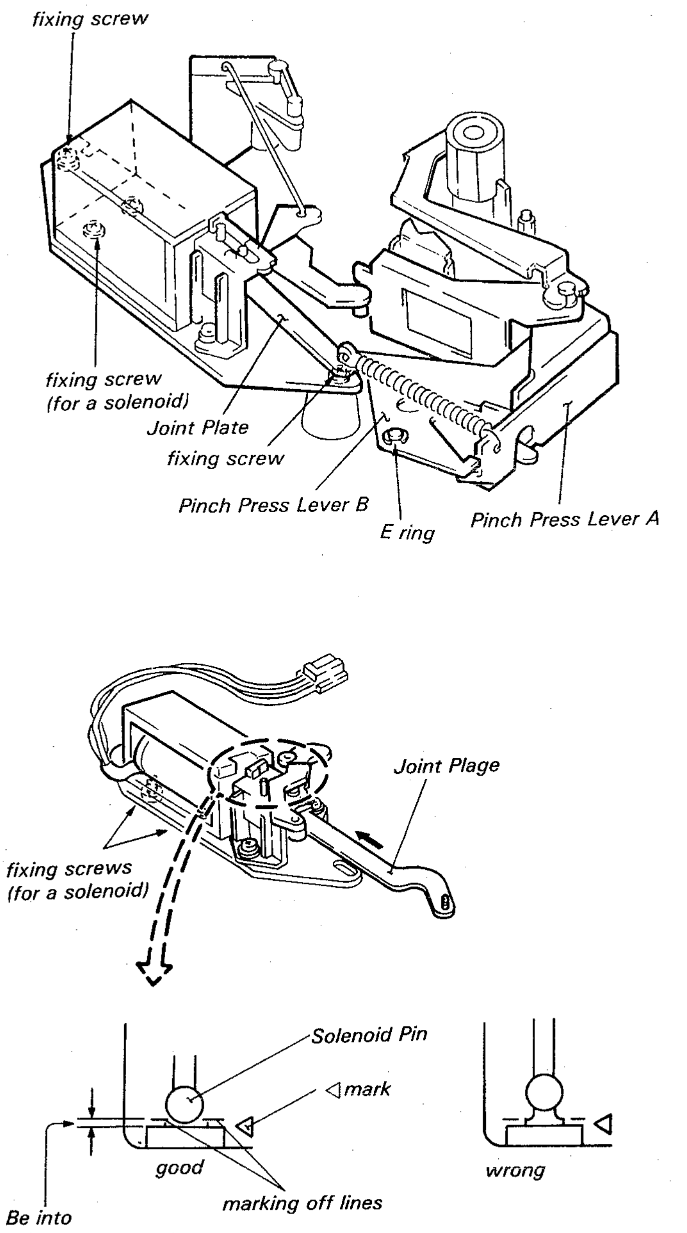
Adjustment procedure:

(1) Remove the E ring and the Joint Plate from the Pinch Press Lever B.

(2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.

(3) Move the Joint Plate to the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.

(4) Install the Pinch Solenoid Block on the unit. Perform the check procedure.


fixing screw
fixing screw (for a solenoid)
Joint Plate
fixing screw
Pinch Press Lever B
E ring
Pinch Press Lever A
Joint Plage
fixing screws (for a solenoid)
Solenoid Pin
◁mark
good
wrong
marking off lines
Be into this space.

Spec.:
Outer circumference of Solenoid Pin is between △ mark and marking off lines.

5-7-5. T Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

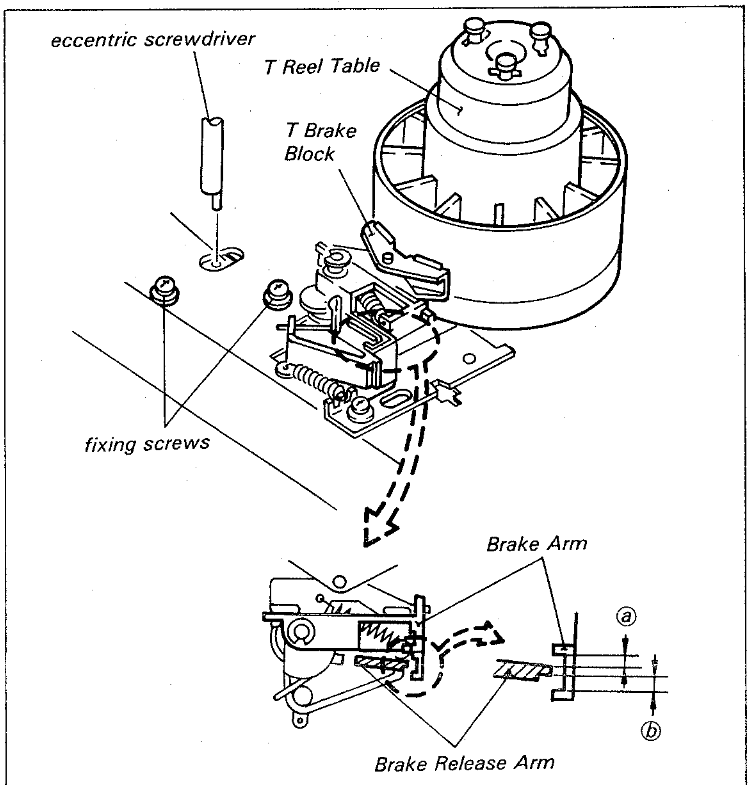
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the T Brake Solenoid with an eccentric screwdriver to meet the required specification.


eccentric screwdriver
T Reel Table
T Brake Block
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm

Spec.:
· There are clearances ⓐ and ⓑ.

5-7-6. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

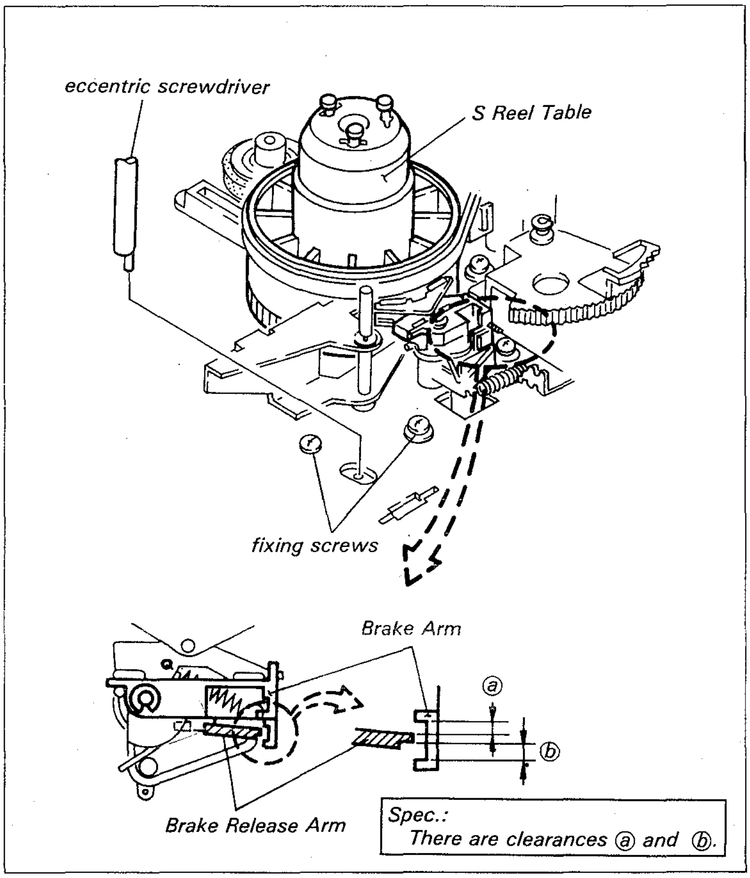
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the S Brake Solenoid with an eccentric screwdriver to meet the required specification.


eccentric screwdriver
S Reel Table
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm

Spec.:
There are clearances ⓐ and ⓑ.

5-7-7. Skew Solenoid Position Adjustment

Mode: EJECT completion mode

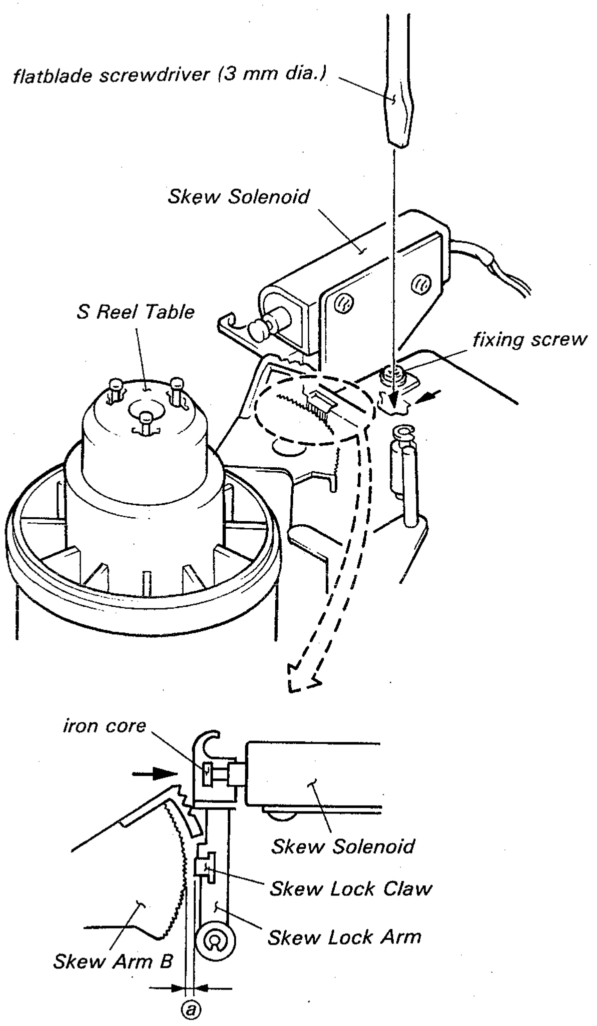
Check procedure:

(1) When pushed the iron core in the direction of the arrow, check that the clearance between the Skew Lock Claw and Skew Arm B meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the Skew Solenoid Block 1/4 to 1/2 turn.

(2) Adjust the position of the Skew Solenoid with a flatblade screwdriver (3 mm dia.) to meet the required specification.


flatblade screwdriver (3 mm dia.)
Skew Solenoid
S Reel Table
fixing screw
iron core
Skew Solenoid
Skew Lock Claw
Skew Lock Arm
Skew Arm B
ⓐ

Spec.:
0.2 mm ≦ ⓐ ≦ 0.5 mm

5-8. CASSETTE-UP COMPARTMENT ADJUSTMENT

- The Cassette-up Compartment has two photo-electric switches. The ON/OFF timings of these switches are adjusted in these procedures.
- Remove the Cassette-up Compartment from the unit for these adjustments.

5-8-1. Cassette-in Switch Position Adjustment

Tool: Circuit tester
Thickness gauge

Preparation:

(1) Connect jumpers from the harness plug for the Cassette-up Compartment to terminals on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN1
pin 5 or 2 (GND)◄	►pin 5 or 2/CN1

(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 1 (H; CASSETTE IN) of CN1 on the CC-36 Board.

(2) Slowly insert a KCA-60 type cassette tape.

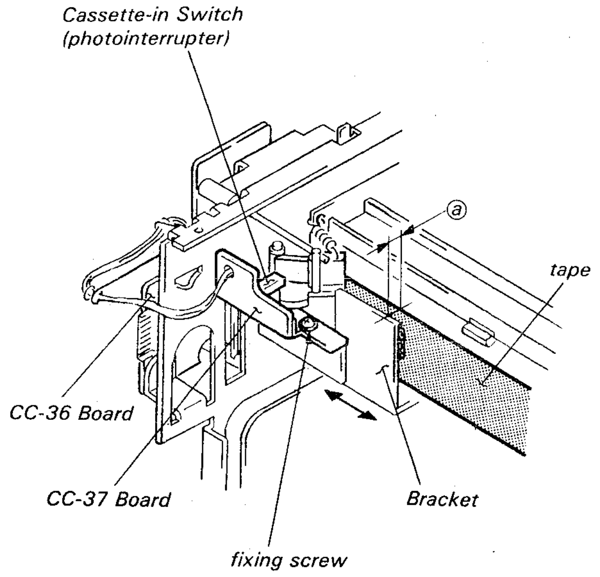
(3) When the circuit tester indicates "H" (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette-up Compartment meets the required specification.

Adjustment procedure:

(1) Move the CC-37 Board (Cassette-in Switch) in the direction of the arrow to meet the required specification.

- Reference:

  Insert a 3.3 mm thickness gauge between the cassette tape and the bracket. Adjust the position of the Cassette-in Switch until the circuit tester indicates to "H".



Spec.:
3 mm ≦ ⓐ ≦ 3.4 mm

5-8-2. Cassette-down Switch Position Adjustment

Tool: Circuit tester

Preparation:

(1) Connect jumpers from the harness plug of the Cassette-up Compartment to terminal on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN1
pin 5 or 2 (GND)◄	►pin 5 of 2/CN1

(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN1 on the CC-36 Board.

(2) Insert a KCA-60 type cassette tape and turn the white gear slowly in the direction of the arrow.

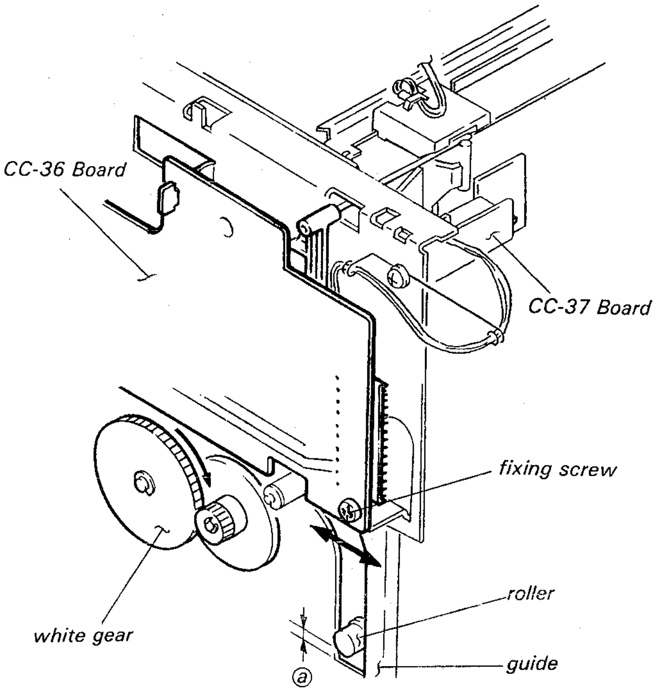
(3) When the circuit tester indicates "H", check that the clearance between the roller and the guide meets the required specification.

Adjustment procedure:

(1) Move the CC-36 Board in the direction of the arrow to meet the required specification.

- Reference:

  Turn the white gear on the right side until the clearance between the roller and the guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates "H" in this position.



Spec.:
$2\ \text{mm} \leqq ⓐ \leqq 3\ \text{mm}$

5-9. LEAF SPRING POSITION ADJUSTMENT

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT mode.

(2) Turn the Gear Box Pulley by hand so that the edge of the T Drawer Arm is at the center of the shaft as shown in the figure.

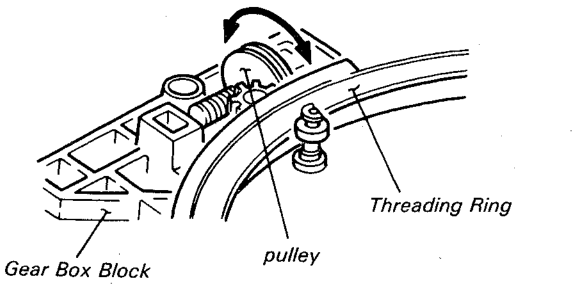
(3) Check that the clearance between the Leaf Spring and the Pinch Roller Shaft meets the required specificaiton (1).

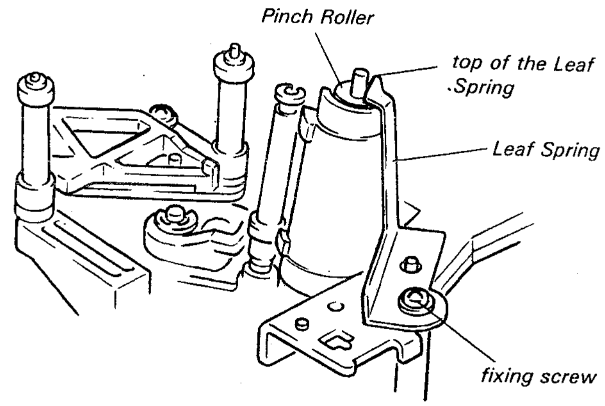
(4) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT completion mode.

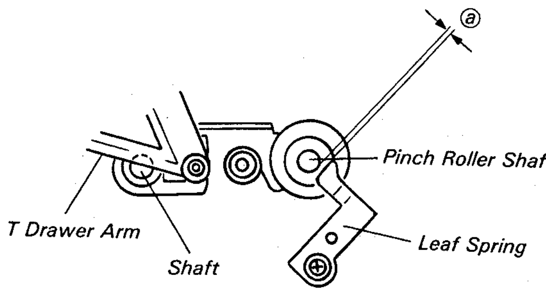
(5) Check that the Leaf Spring touches the Pinch Roller Shaft, and the clearance between the Leaf Spring and the Pinch Roller meets the required specification (2).

Adjustment procedure:

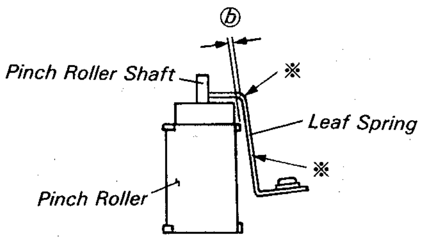
(1) Adjust the position of the Leaf Spring to meet the required specifications (1) and (2). If only specification (2) cannot be obtained, bend the ※ of the Leaf Spring to meet the required specification.


Threading Ring
Gear Box Block
pulley


Pinch Roller
top of the Leaf Spring
Leaf Spring
fixing screw


ⓐ
Pinch Roller Shaft
T Drawer Arm
Leaf Spring
Shaft

Spec.(1):
ⓐ ≦ 0.5 mm


ⓑ
Pinch Roller Shaft
※
Leaf Spring
※
Pinch Roller

Spec.(2):
There is a clearance ⓑ.

5-10. PINCH LEVER AZIMUTH ADJUSTMENT

Tool: Pinch lever adjustment jig

Mode: EJECT completion mode

Check procudure:

(1) Remove the Pre-set Deck and install the pinch lever adjustment jig to the capstan shaft as shown in the figure.

(2) Push tne pinch lever in the direction of arrow A and set the notches of the pinch lever to B and C.

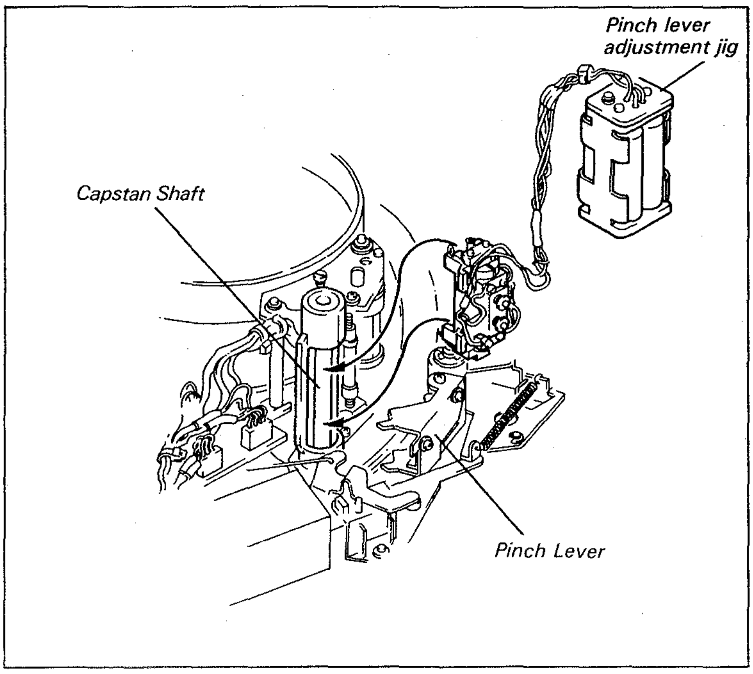
(3) When lightly pushing the pinch lever in the derection of arrow A, check that the green and the red lamps light.

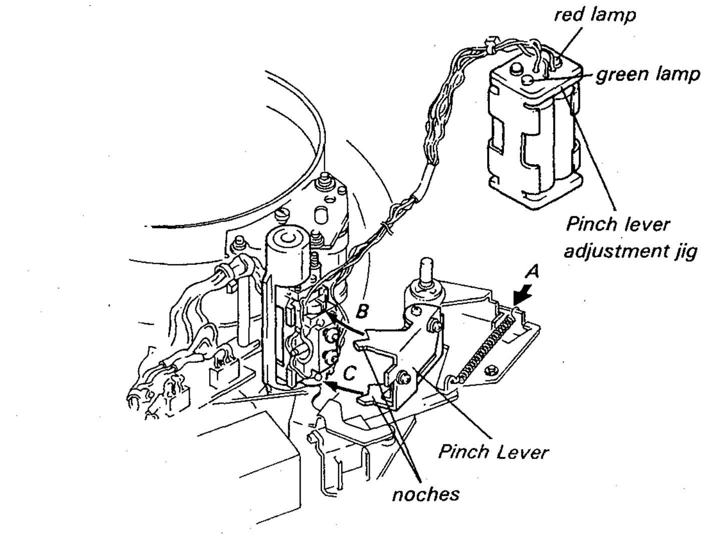
Adjustment procedure:

(1) Loosen the two fixing screws of the pinch lever and aojust the azimuth adjustment screw to meet the required specification.

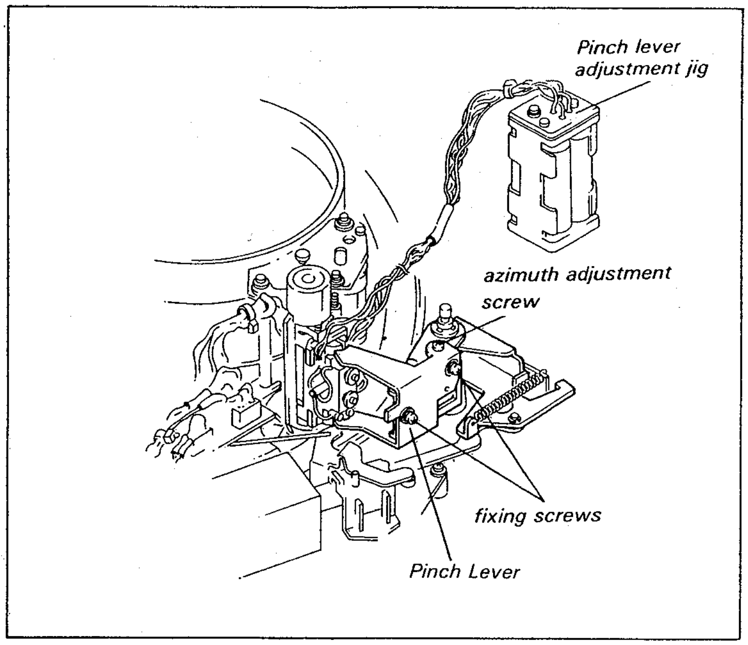
(2) After tightening the two fixing screws, check that the azimuth adjustment screw is thghten.

(3) Check that it meets the required specification again.


Pinch lever adjustment jig
Capstan Shaft
Pinch Lever


red lamp
green lamp
Pinch lever adjustment jig
A
B
C
Pinch Lever
noches

Spec:
When lightly pushing the pinch lever in the direction of arrow A, check that the green and the red lamps light.


Pinch lever adjustment jig
azimuth adjustment screw
fixing screws
Pinch Lever

SECTION 6
BACK TENSION AND TORQUE ALIGNMENT

6-1. BRAKE SYSTEM ADJUSTMENT

6-1-1. S Brake Torque Adjustment

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Grasp the top of the S Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).

(2) Place the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

Adjustment procedure:

For Spec. (1)

(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

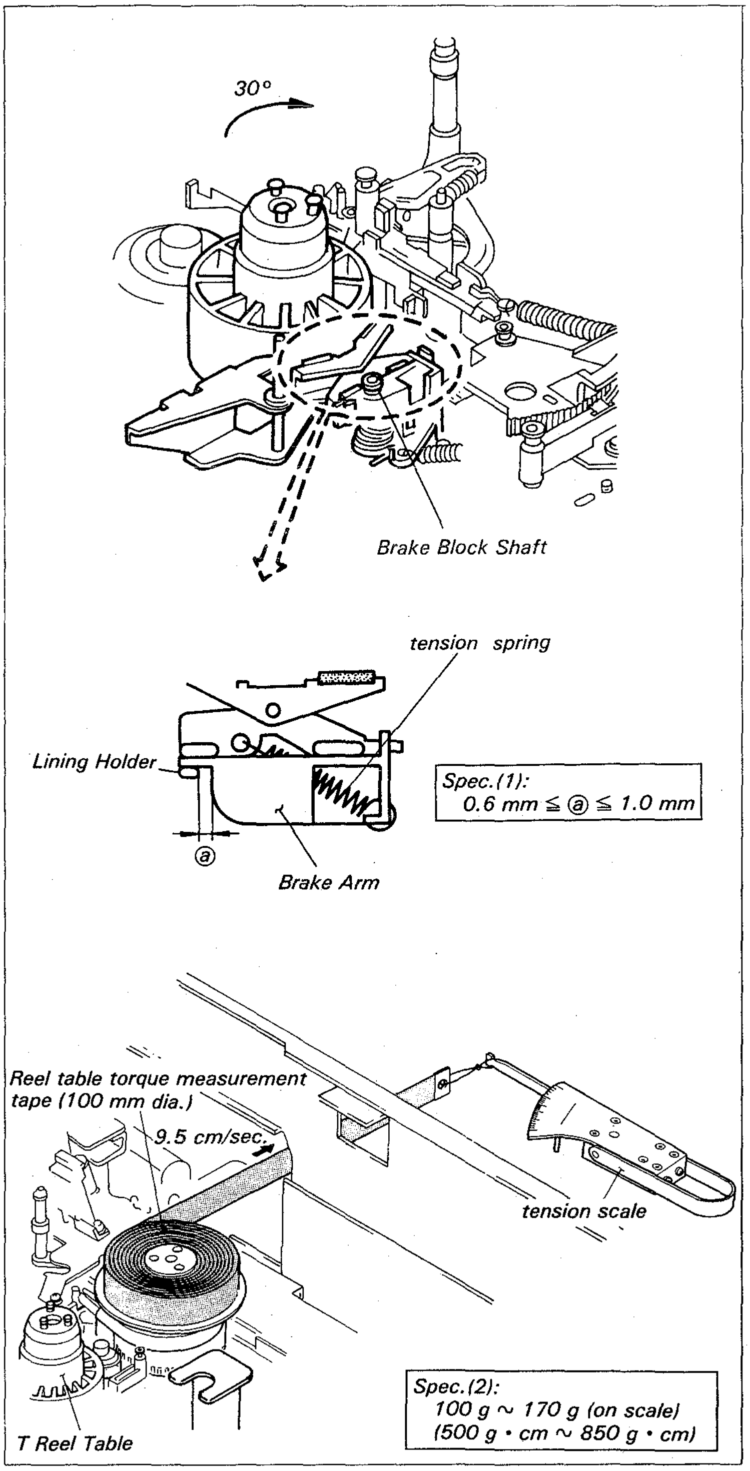
For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If dose not meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01

(4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.

(5) If does not meet the specification in Step (4), replace the reel table and check again.


30°
Brake Block Shaft
tension spring
Lining Holder
ⓐ
Brake Arm
Reel table torque measurement tape (100 mm dia.)
9.5 cm/sec.
tension scale
T Reel Table

Spec.(1):
0.6 mm ≦ ⓐ ≦ 1.0 mm

Spec.(2):
100 g ~ 170 g (on scale)
(500 g・cm ~ 850 g・cm)

6-1-2. T Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Grasp the top of the T Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).

(2) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape. While pushing the T Tension Regulator to the left, pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

Adjustment procedure:

For Spec. (1)

(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

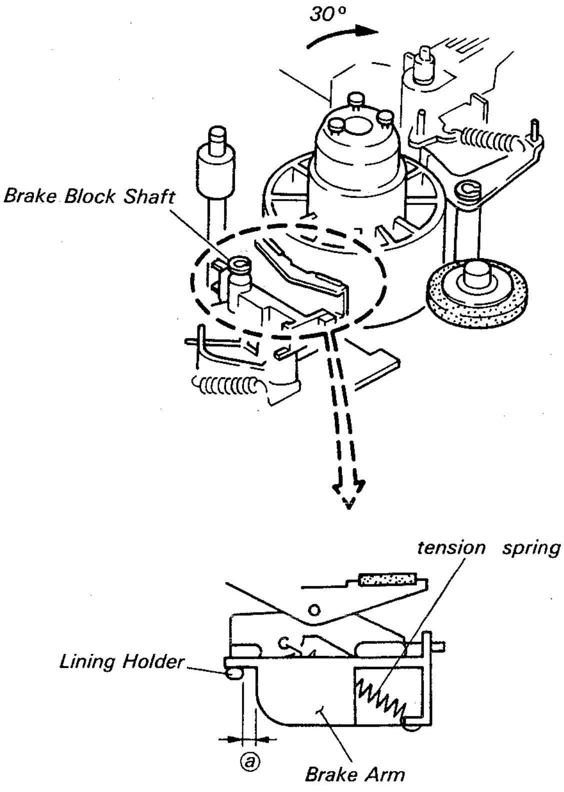
For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If does no meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01

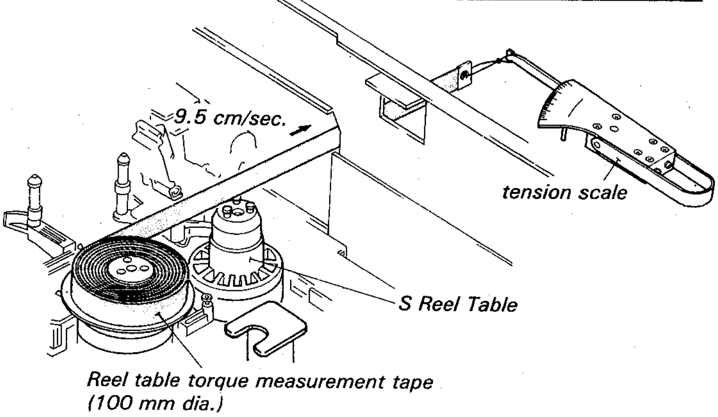
(4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.

(5) If does not meet the specification in Step (4), replace the reel table and check again.


30°
Brake Block Shaft
tension spring
Lining Holder
ⓐ
Brake Arm

Spec.(1):
0.6 mm ≦ ⓐ ≦ 1.0 mm

Spec.(2):
100 g ~ 170 g (on scale)
(500 g · cm ~ 850 g · cm)


9.5 cm/sec.
tension scale
S Reel Table
Reel table torque measurement tape
(100 mm dia.)

6-1-3. REW Brake Torque Adjustment

Mode: REW mode

Tool: Reel table torque measurement tape
(100 mm dia.)
Tension scale (50 g full scale)

Check procedure:

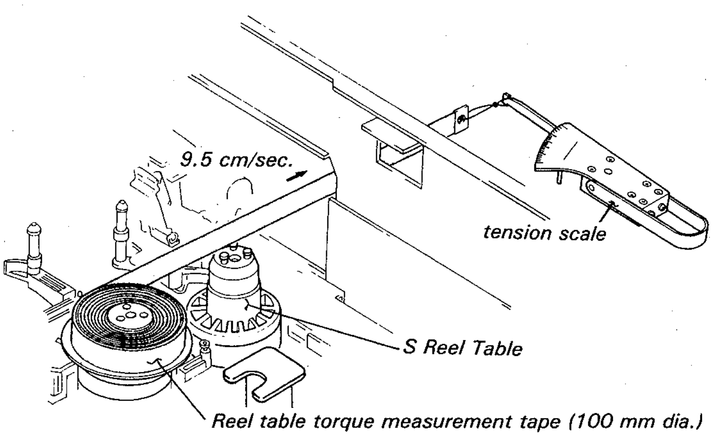
(1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape.

(2) Put the unit into the REW mode. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) If does not meet the specification, replace the R Brake Ass'y and check again.

(2) If does not meet the specification in Step (1), replace the Reel Table and check again.


9.5 cm/sec.
tension scale
S Reel Table
Reel table torque measurement tape (100 mm dia.)

Spec.:
18 g ~ 36 g (on scale)
(90 g · cm ~ 180 g · cm)

6-2. F FWD / REW TORQUE ADJUSTMENT

. It is required that the Section 5-7-2, T Idler Solenoid Position Adjustment and Section 5-7-3, S Idler Solenoid Position Adjustment are correct before initiating this adjustment.

Mode: F FWD and REW modes

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (500 g full scale)

Check procedure:

F FWD Torque

(1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the tape. Pull out the tape.

(2) Put the unit into the F FWD mode. Let the tape be pulled at a constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

REW Torque

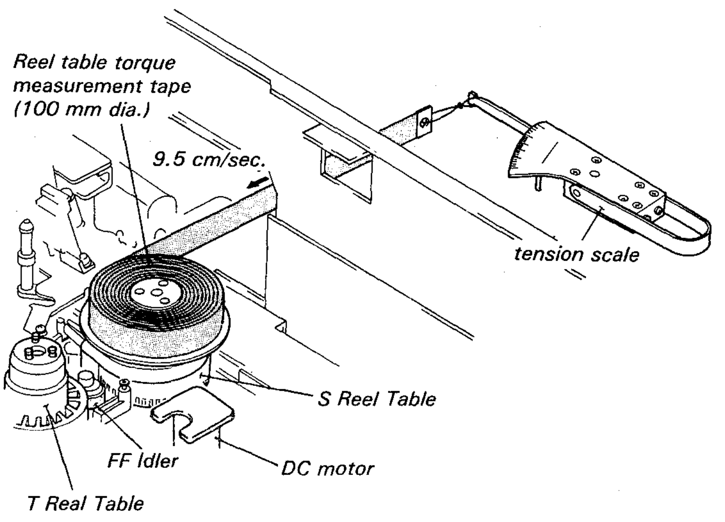
(3) Install the jig tape on the S Reel Table and hook a tension scale to the end of the tape. Pull out the tape.

(4) Put the unit into the REW mode. Let the tape be pulled at the constant speed·of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

Adjustment procedure:

Both F FWD Torque and REW Torque are adjusted by the following adjustment procedures.

(1) Clean the surface of the Reel Table, FF idler and belt with a cloth moistened with cleaning fluid. Check the torque again.



Spec.:
The Tension scale reading of FF Torque and REW Torque are more than 300 g (more than 1500 g • cm)

(2) If Step (1) does not meet the specification, put the unit into F FWD or REW mode without a cassette tape. Check that the dc voltage at the terminals of the dc motor is 10.5 ± 1.5V. If the dc voltage is out of specification, check that the circuit operation of the SY Board operates correctly.

(3) If does not meet the specification in Steps (1) and (2), replace the Reel Table, FF idler and belt.

6-3. FWD TORQUE ADJUSTMENT

Mode: x1/2 to x1 FWD SEARCH mode

Check procedure:

(1) Insert a KCS-20 cassette tape wound to the tape end portion.

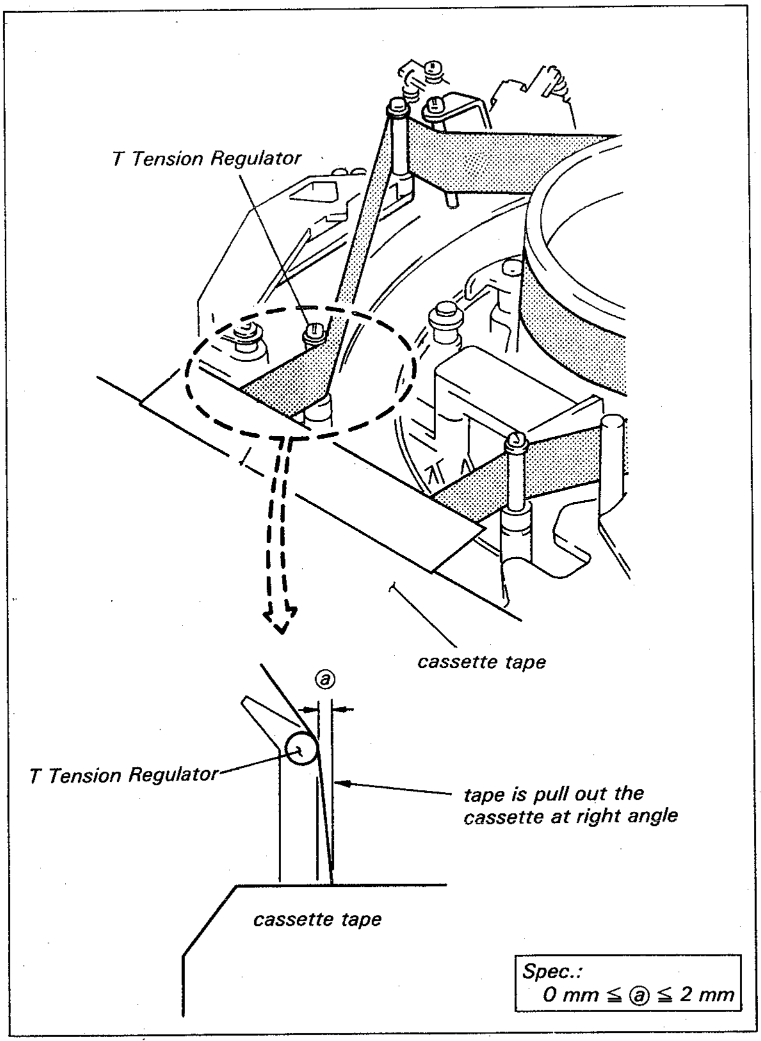
(2) Short between TP3 on the SY-141C Board and GND with a shorting clip.

(3) Put the unit into x1/2 to x1 FWD SEARCH mode with search dial.

(4) Check that the relationship between the T Tension Regulator Arm and cassette tape meets the required specification.

Adjustment procedure:

(1) Adjust RV3 on the SY-141C Board until it meets the required specification in the FWD mode.


T Tension Regulator
cassette tape
ⓐ
T Tension Regulator
tape is pull out the cassette at right angle
cassette tape

Spec.:
0 mm ≦ ⓐ ≦ 2 mm

6-4. REV TORQUE ADJUSTMENT

Mode: x1/2 to x1 REV SEARCH mode

Check procedure:

(1) Insert a KCA-60 cassette tape wound to the tape beginning portion.

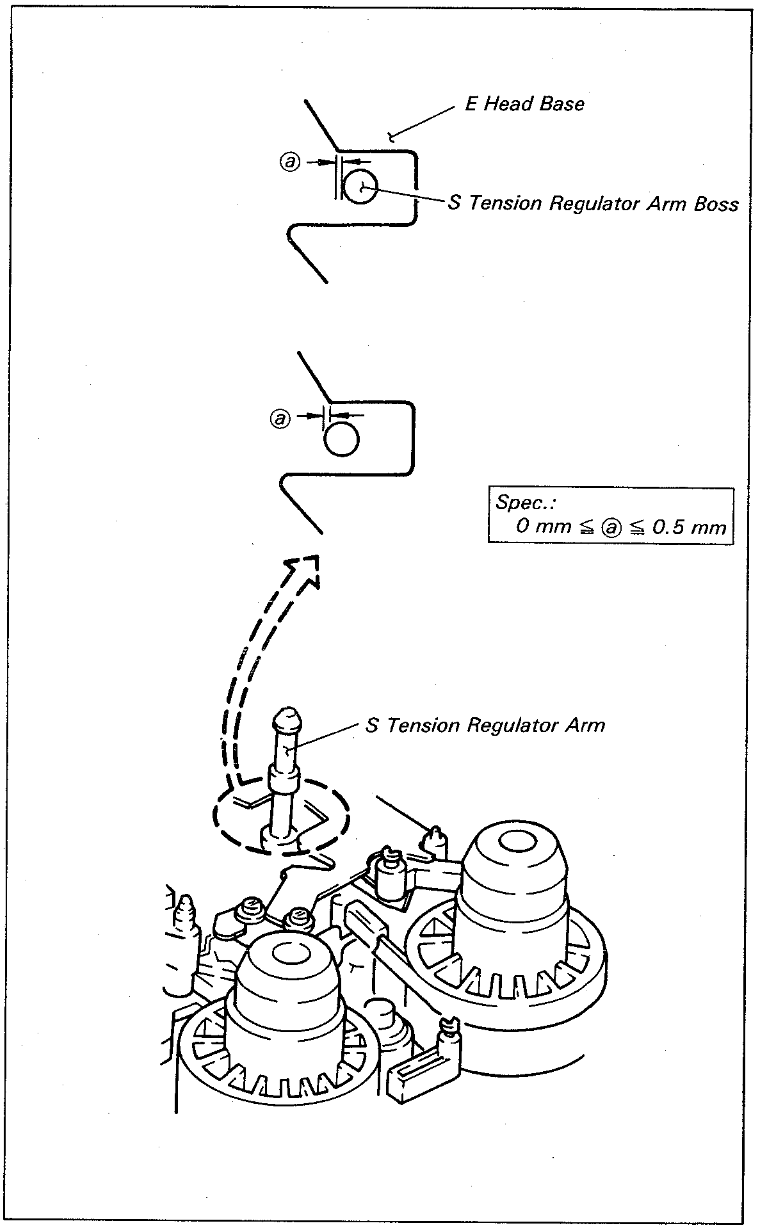
(2) Short between TP3 on the SY-141C Board and GND with a shorting clip.

(3) Put the unit into x1/2 to x1 REV SEARCH mode with search dial.

(4) Check that the relationship between the S Tension Regulator Boss and the bracket of the Erase Head Base meets the required specification.

Adjustment procedure:

(1) Adjust RV2 on the SY-141C Board until it meets the required specification.


E Head Base
ⓐ
S Tension Regulator Arm Boss
ⓐ
S Tension Regulator Arm

Spec.:
0 mm ≦ ⓐ ≦ 0.5 mm

6-5. F FWD BACK TENSION ADJUSTMENT

- It is required that the Section 5-6-3, S Tension Regulator Operating Position Adjustment is correct before initiating this adjustment.
- It is required that the Section 6-6, FWD Back Tension Adjustment is performed after this adjustment.

Tool: Back tension adjustment jig
Reel table torque measurement tape (100 mm dia.)
Tension scale (50 g full scale)

Preparation:

(1) Turn the power ON and put the unit into the FR-STOP mode. (When the power is ON, the S Drawer Arm moves and the unit automatically enters the FR-STOP mode.)

(2) Turn the Pulley of Gear Box Block by hand in the direction of the Threading Ring until the S Drawer Roller is in front of the CTL PB Head.

(3) Place the Back Tension Adjustment Jig.

(4) Place the jig tape on the S Reel Table and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.

(5) Turn the Pulley in the opposite direction in Step (2) until the S Drawer Roller is engaged with the S Holder.

(6) Hook a tension scale to the end of the tape.

Check procedure:

(1) Press the F FWD button and put the unit into the F FWD mode.

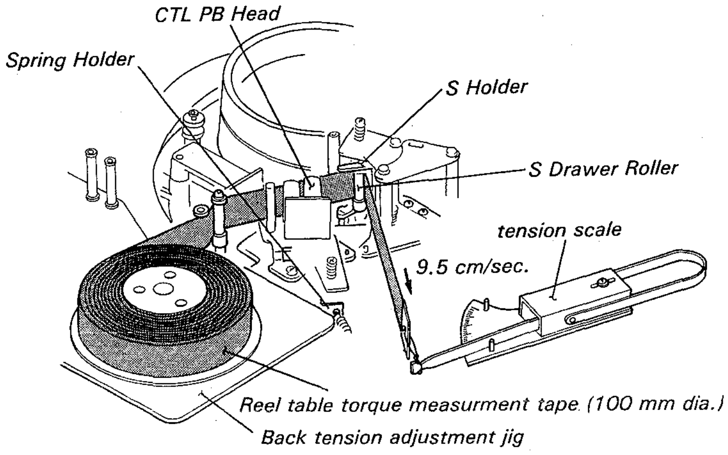
(2) Pull out a tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Move the position of the Spring Holder with a flatblade screwdrivers (3mm dia.) to meet the required specification.

(2) After the adjustment, perform the check procedures again.

(3) Perform the Section 6-6, FWD Back Tension Adjustment.


CTL PB Head
Spring Holder
S Holder
S Drawer Roller
tension scale
9.5 cm/sec.
Reel table torque measurment tape (100 mm dia.)
Back tension adjustment jig

Spec.:
40 g ~ 47 g (on scale)

6-6. FWD BACK TENSION ADJUSTMENT

Tool: Back tension measurement special cassette tape

This cassette should be prepared as follows:

- Wind up tape to the S Reel and remove the ※ marked seven fixing screws on the back of the cassette as shown in the figure. Remove the upper half of the cassette. (fig.1) Cut the cassette tape and put a piece of adhesive tape on the end of the cassette tape, and then make a hole through it. Lace a piece of string through the hole and tie a small loop. (fig.2)

Tension scale (100 g full scale)

Preparation:

(1) Push the Skew Lock Arm in the direction of the arrow.

(2) Place the special cassette tape on the reel tables and pull out the tape as shown in the figure.

(3) Hold the special tape with a hand securely at the position as shown in the figure. Turn the power ON and put the unit into the FR-STOP mode.
Check that the tape does not curl at the flange of the S Drawer Roller.

(4) Hook the tension scale to the end of the special tape. Be sure that the tape does not curl at the upper or lower flange of the S Drawer Roller.

Check procedure:

(1) Put the unit into the PLAY mode. Pull out the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Adjust the position of the proper spring hook of the Skew Arm B to meet the required specification.

(2) After adjustment, perform the check procedures again.

fig. 1

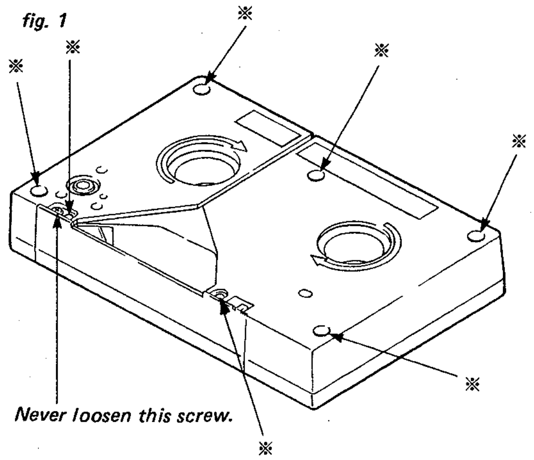
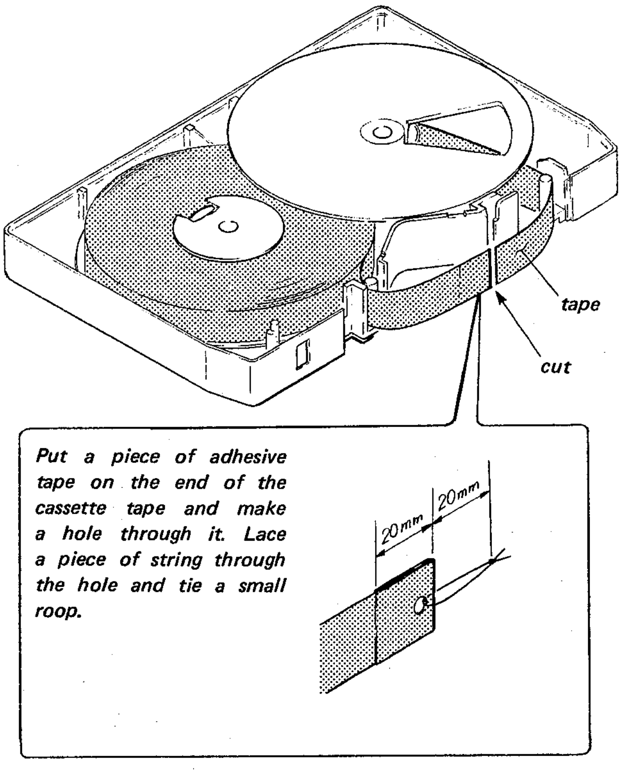
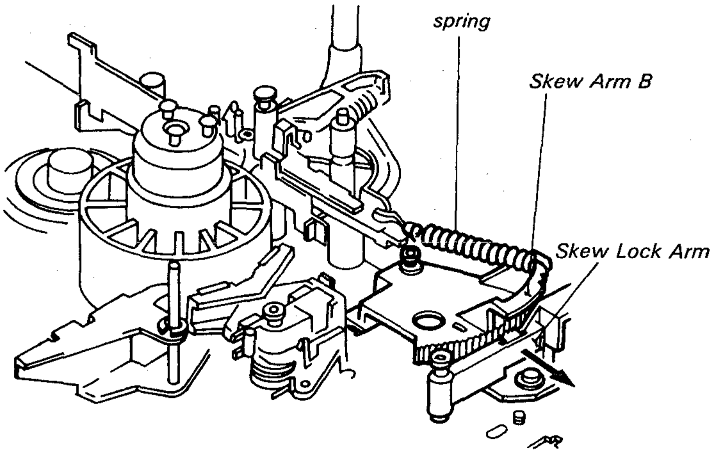
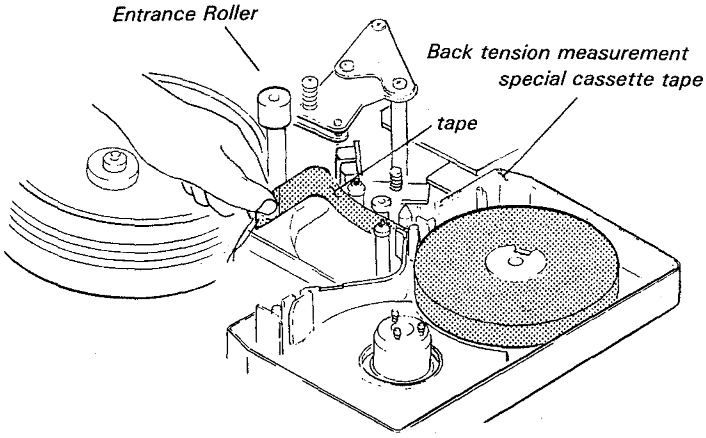
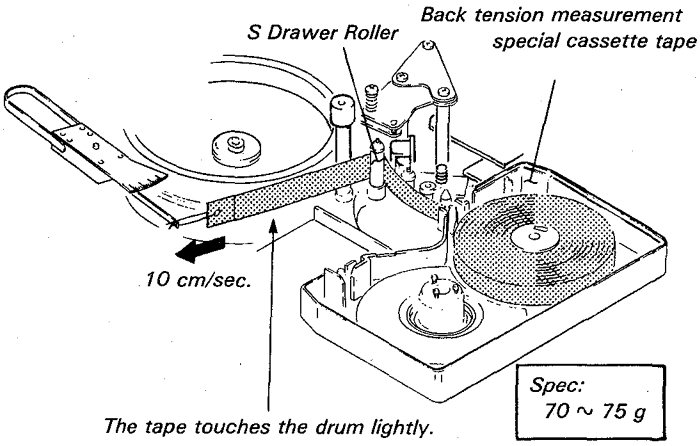

※
※
※
※
※
※
※
Never loosen this screw.

fig. 2


tape
cut
Put a piece of adhesive tape on the end of the cassette tape and make a hole through it. Lace a piece of string through the hole and tie a small roop.
20mm
20mm


spring
Skew Arm B
Skew Lock Arm


Entrance Roller
Back tension measurement special cassette tape
tape


Back tension measurement special cassette tape
S Drawer Roller
10 cm/sec.
The tape touches the drum lightly.
Spec:
70 ~ 75 g

SECTION 7
TAPE RUN ALIGNMENT

7-1. F FWD/REW MODES TAPE PATH ADJUSTMENT

Mode: F FWD and REW modes

Check procedure:

(1) Inserat a KCA-60 cassette tape which has advanced about half way through (about 30 minutes). Put the unit into the REW mode.

(2) Check that the tape tension is equal around the T Drawer Arm. (Spec.1)

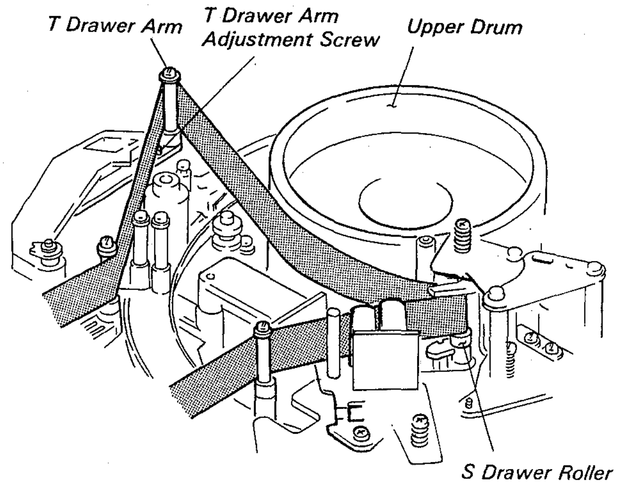
(3) Check that the tape runs without any curling at the upper or lower flange of the S Drawer Roller in the REW mode. (Spec. 2)

(4) Put the unit into the STOP mode, and then into the REW mode. Check that the tape runs without any curling at the S Drawer Roller at the moment just after entering the REW mode. (Spec. 3)

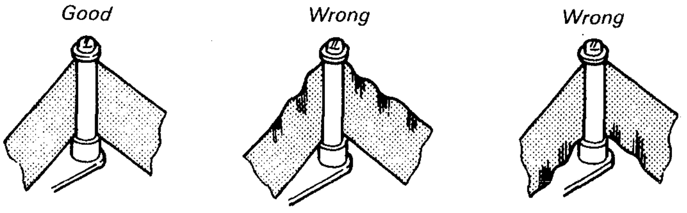
(5) Put the unit into the F FWD mode. Check that the tape runs without any curling at the S Drawer Roller and T Drawer Arm at the moment of just after entering the F FWD mode. (Spec. 4)

Adjustment procedure:

(1) Adjust the slantness of the T Drawer Arm by turning the T Drawer Arm Adjustment Screw.



Spec.(1):



7-2. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

Tool: Dental mirror

Check procedure:

(1) Insert a KCA-60 cassette tape and put the unit into the FR-STOP mode. Just as the Pinch Roller passes in front of the T Correction Guide, quickly turn the power OFF.

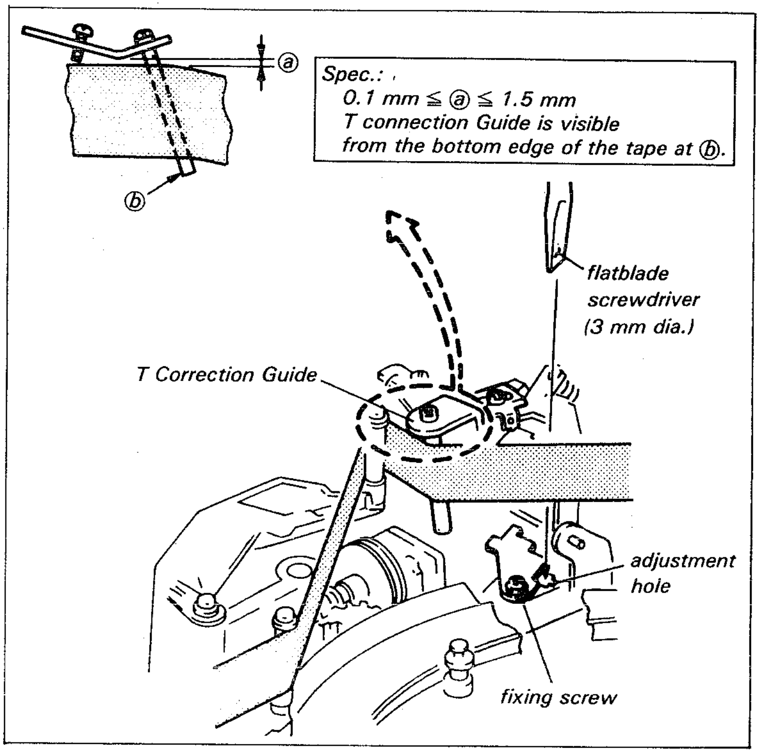
(2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.

(2) Adjust the position of the T Correction Guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(3) After adjustment, perform Section 7-4, PLAY Mode Tape Path Adjustment (1).



Spec.: ,
0.1 mm ≦ ⓐ ≦ 1.5 mm
T connection Guide is visible from the bottom edge of the tape at ⓑ.

7-3. TIME CODE HEAD ADJUSTMENT

- The Time Code Head is located near the drum. During adjustment of the Time Code Head, be sure to not damage the video head or scratch the drum.
- The Time Code Head Zenith Adjustment is closely related to the Azimuth Adjustment and the Height Adjustment. When performing any of these aqjustments, always perform the other two adjustments at the same time.

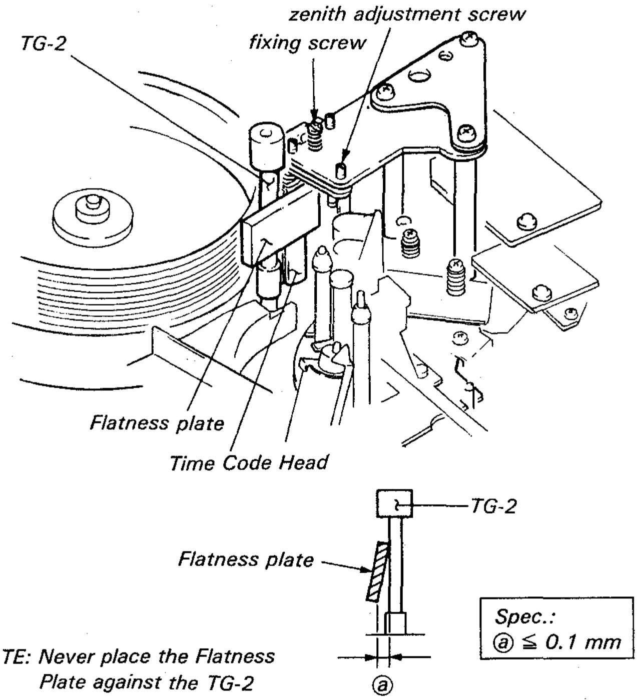
7-3-1. Time Code Head Zenith Adjustment

Tool: Flatness plate
Mode: EJECT completion mode
Check procedure:

(1) Place the Flatness Plate against the TG-2 and the Time Code Head. Check that the clearance between the TG-2 and the Flatness Plate meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.
(2) Adjust the zenith of the Time Code Head by turning the zenith adjustment screw to meet the required specification.
(3) Tighten the fixing screw and perform the check procedure.
(4) After adjustment, perfotm the Time Code Head Azimuth Adjustment and the Height Adjustment.



NOTE: Never place the Flatness Plate against the TG-2 strongly.

Spec.:
ⓐ ≦ 0.1 mm

7-3-2. Time Code Head Azimuth Adjustment

Mode: EJECT completion mode

Check procedure:

(1) Check that the clearance between the top or the bottom of the Time Code Head and the TG-2 is parallel.

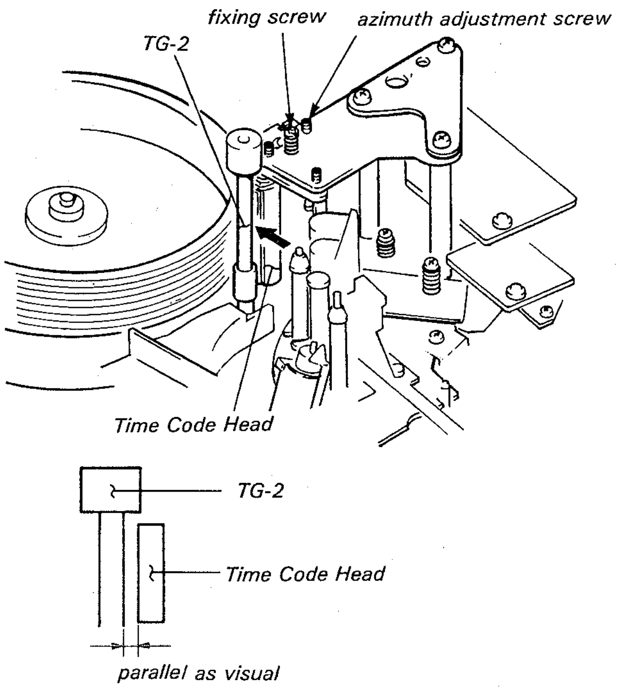
Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Adjust the azimuth of the Time Code Head by turning the azimuth adjustment screw to meet the required specification.

(3) Tighten the fixing screw and perform the check procedure.

(4) After adjustment, perform the Time Code Head Zenith Adjustment and the Height Adjustment.


fixing screw
azimuth adjustment screw
TG-2
Time Code Head
TG-2
Time Code Head
parallel as visual

7-3-3. Time Code Head Head-to-tape Contact Adjustment

Tool: Alignment tape, RR5-1SD PAL
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP405 on the NR-31 Board.

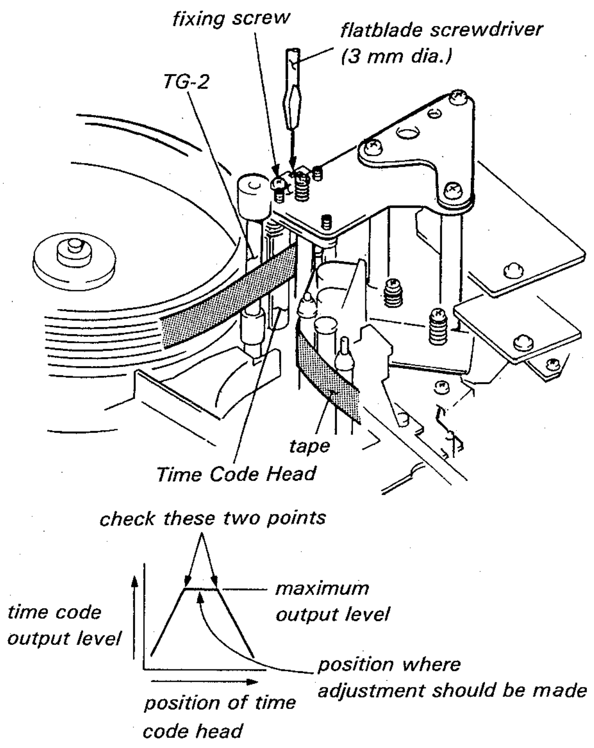
(2) Playback the time code signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the fixing screw of the head-to-tape contact adjustment 1/4 to 1/2 turn.

(2) Insert a flatblade screwdriver (3mm dia.) into the notch as shown in the figure. Find the two points where the output waveform is at maximum and just starts to decrease.

(3) Adjust the position of the Time Code Head Block with a flatblade screwdriver (3 mm dia.) to the center of these two points. After adjustment, tighten the fixing screw.


fixing screw
flatblade screwdriver
(3 mm dia.)
TG-2
tape
Time Code Head
check these two points
maximum
output level
time code
output level
position where
adjustment should be made
position of time
code head

7-4. PLAY MODE TAPE PATH ADJUSTMENT (1)

- It is required that Section 7-2, T Correction Guide Slantness Adjustment and Section 7-1, F FWD/REW Modes Tape Path Adjustment are correct before initiating this adjustment.

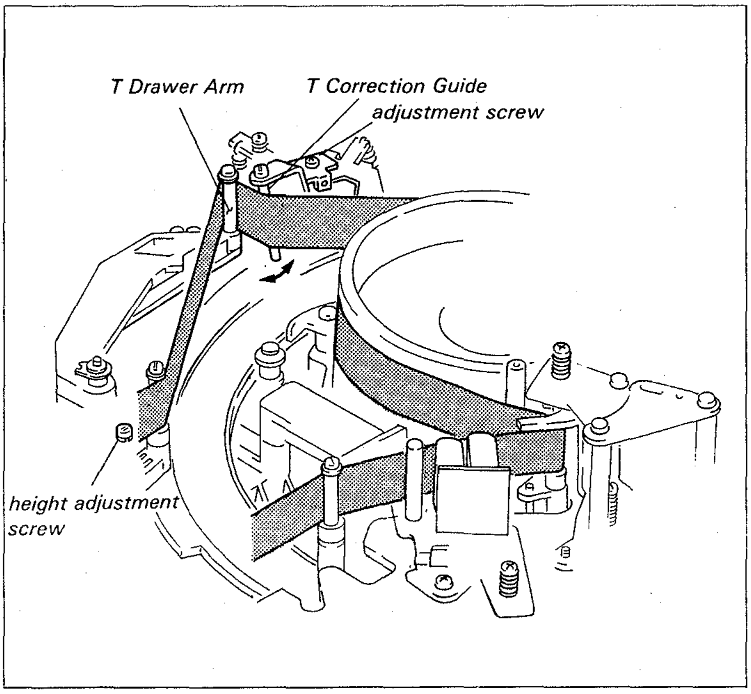
Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) Check that the tape runs without any curling at the upper or lower flange of the T Drawer Guide. (Spec.1)

(3) Check that tape tension is equal at the top and bottom edges of the tape around the T Drawer Guide, and that the tape runs without any curling at the lower flange of the T Drawer Guide. (Spec.2)



Adjustment procedure:

For Spec.1

(1) Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec.2

(2) Bend the T Correction Guide in the direction of the arrow. Turn the adjustment screw if necessary to meet the required specification.

7-5. PLAY MODE TAPE PATH ADJUSTMENT (2)

Tool: Dental mirror

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) At the ※ marks (two positions) in the figure, check that tape tension is equal at the top and bottom edges of the tape. (Spec.1)

(3) Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification (2).

Adjustment procedure:

(1) Loosen the fixing screw at the bottom of the Threading Roller.

For Spec.1

(2) Adjust the slantness of the Threading Roller by turning the slantness adjustment screw.

NOTE:

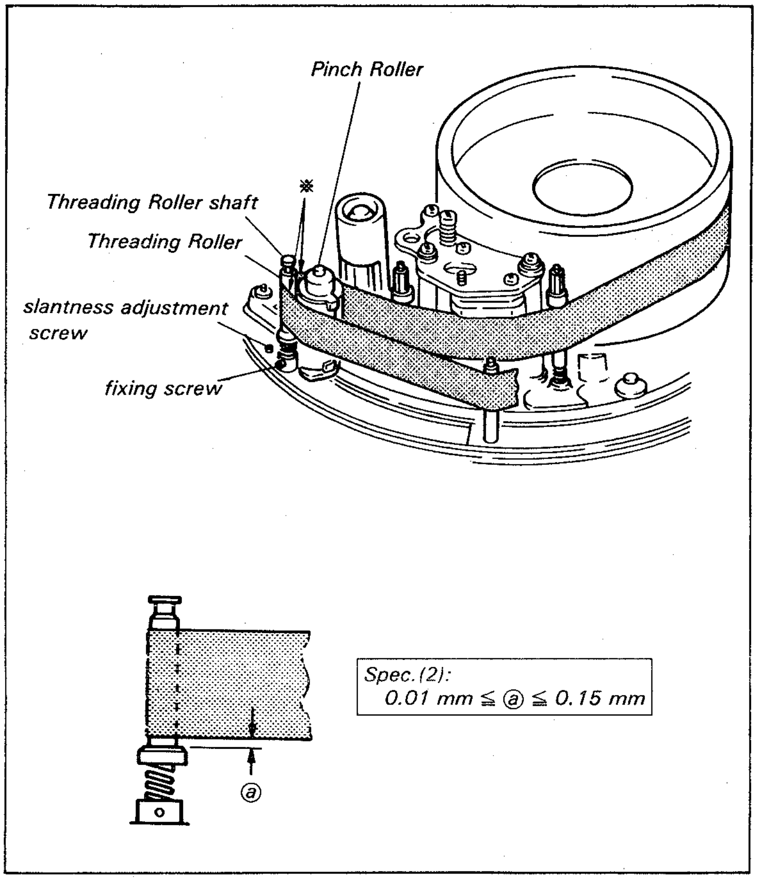
- After adjustment, perform Section 7-6, REV Mode Tape Path Adjustment and Section 7-7, Tape Path Adjustment Around Pinch Roller.

For Spec.2

(3) Adjust the height of the Threading Roller by turning the Threading Roller Shaft to meet the required specification.

(4) Check that the slantness and the height meet the required specifications (1) and (2).

(5) After adjustment, tighten the fixing screw of the Threading Roller and perform the check procedure.



Spec.(2):
0.01 mm ≦ ⓐ ≦ 0.15 mm

7-6. REV MODE TAPE PATH ADJUSTMENT

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes).

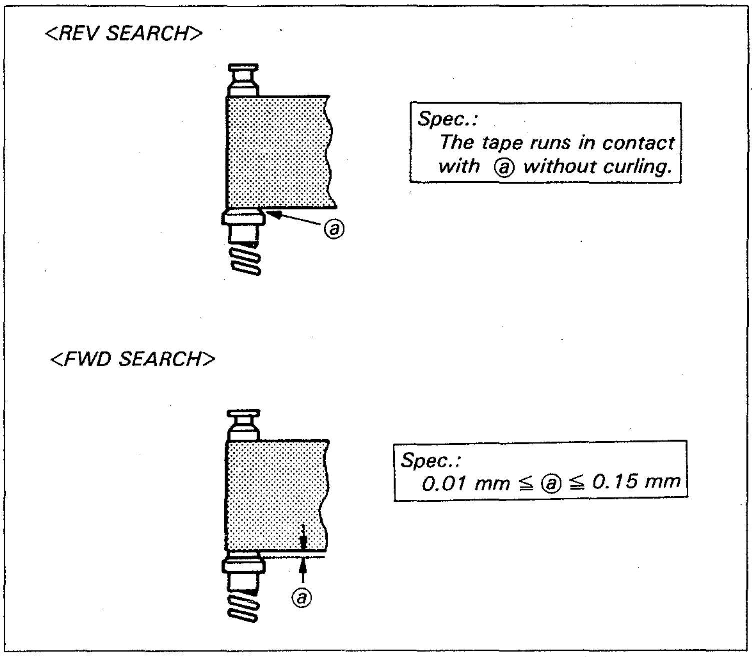
(2) Put the unit into the REV SEARCH mode. Check that the tape runs in contact with the lower flange of the Threading Roller without curling.

(3) Put the unit into the FWD SEARCH mode. Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification and the tape does not curl at the lower or upper flange of TG-4.

Adjustment procedure:

(1) Fine adjust the height of the Threading Roller by turning the Threading Roller Shaft.

(2) After adjustment, perform the Section 7-5, PLAY Mode Tape Path Adjustment (2).


<REV SEARCH>
ⓐ
Spec.:
The tape runs in contact with ⓐ without curling.
<FWD SEARCH>
ⓐ
Spec.:
0.01 mm ≦ ⓐ ≦ 0.15 mm

7-7. TAPE PATH ADJUSTMENT AROUND PINCH ROLLER

Check procedure:

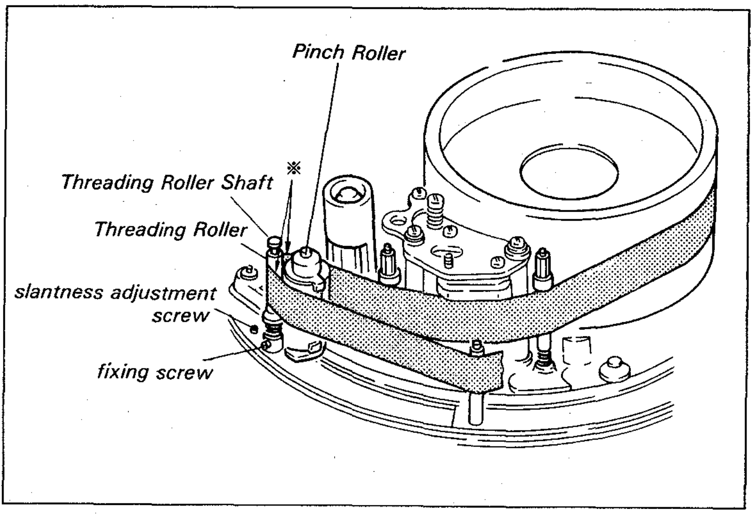
(1) Insert a KCA-60 cassette tape wound to the tape beginning portion.

(2) When put the unit into the PLAY, REV SEARCH, FWD SEARCH modes, check that tape wrinkle does not appear, or disappear within 2 sec.

Adjustment procedure:

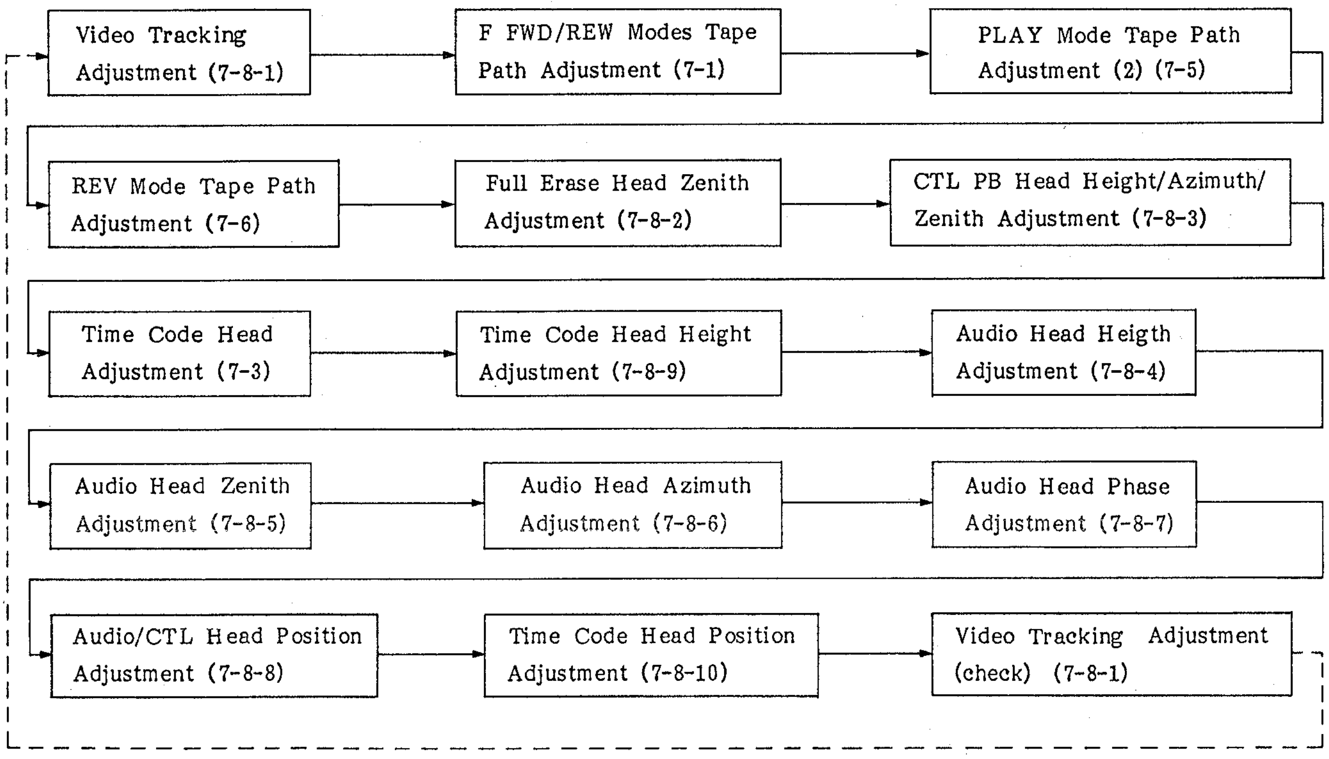
(1) Adjust the slantness and height of the Threading Roller until it meets the required specification.

(2) After adjustment, perform Section 7-5, PLAY Mode Tape Path Adjustment (2), Section 7-6, REV Mode Tape Path Adjustment, and Section 7-8, Tracking Adjustment.


Pinch Roller
Threading Roller Shaft
※
Threading Roller
slantness adjustment screw
fixing screw

7-8. TRACKING ADJUSTMENT

- Perform the Tracking Adjustments as follows:
  (Numbers in the parenthesis refer to Section Nos.)


Video Tracking Adjustment (7-8-1)
F FWD/REW Modes Tape Path Adjustment (7-1)
PLAY Mode Tape Path Adjustment (2) (7-5)
REV Mode Tape Path Adjustment (7-6)
Full Erase Head Zenith Adjustment (7-8-2)
CTL PB Head Height/Azimuth/ Zenith Adjustment (7-8-3)
Time Code Head Adjustment (7-3)
Time Code Head Height Adjustment (7-8-9)
Audio Head Heigth Adjustment (7-8-4)
Audio Head Zenith Adjustment (7-8-5)
Audio Head Azimuth Adjustment (7-8-6)
Audio Head Phase Adjustment (7-8-7)
Audio/CTL Head Position Adjustment (7-8-8)
Time Code Head Position Adjustment (7-8-10)
Video Tracking Adjustment (check) (7-8-1)

7-8-1. Video Tracking Adjustment

Tool: Alignment tape, RR2-1SD PAL
Flatness plate
Oscilloscope
Dental mirror

Preparation:

(1) Connect the oscilloscope to TP18 on the DM-72 Board and EXT. TRIG to TP12 on the SV-112C Board.

(2) Playback the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF waveform maintains a flat envelope while the amplitude increases and decreases.

(2) Check that fluctuation and head-to-tape contact of the RF envelope are within the specification at the center detent position of the TRACKING control knob.

Adjustment procedure:

- The S Drawer Roller Block has three adjustment screws. These three adjustment screws function as follows:

(i) Slantness adjustment screw (a)

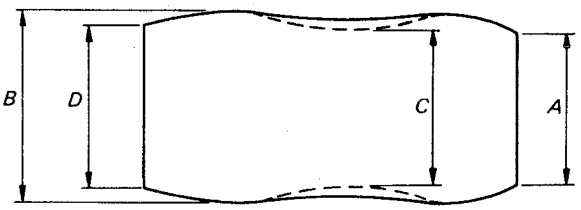
Turn this screw in the clockwise direction, then the S Drawer Roller slants in the direction of arrow A.

(ii) Slantness adjustment screw (b)

Turn this screw in the counterclockwise direction, then the S Drawer Roller slants in the direction of arrow B. This screw is used for removing tape curl at the upper flange of the S Drawer Roller. However, this screw is used only when the tape curls at the flange of the S Drawer Roller, even though the RF output waveform meets the required specification.

(iii) Height adjustment screw

Turn this screw in the clockwise direction, then the height of the S Drawer Roller lowers.

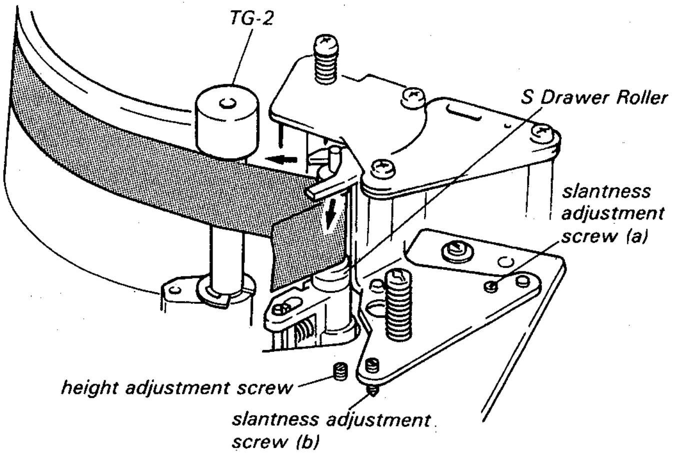


Spec.: <head to tape contact>

$\frac{A}{B} \geqq 0.70$ $\frac{D}{B} \geqq 0.70$

<fluctuation>

$\frac{C}{B} \geqq 0.90$


TG-2
S Drawer Roller
slantness adjustment screw (a)
height adjustment screw
slantness adjustment screw (b)

- When tape guides (TG-3, TG-4) are adjusted, loosen the locking screw about 1 turn and adjust the height by turning the height adjustment nut.
- **When tracking at the entrance side of the drum is not good.**

(1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80 % of maximum.

(2) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope of the entrance side is flat.

NOTE:

(i) Check the surface of the running tape very carefully around the S Drawer Roller. Check that tape tension is equal at the top and bottom of the tape.

(ii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

- **When tracking at the center of the drum is not good.**

  (It is required that the Tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

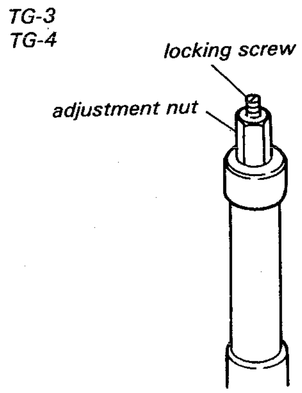
(3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

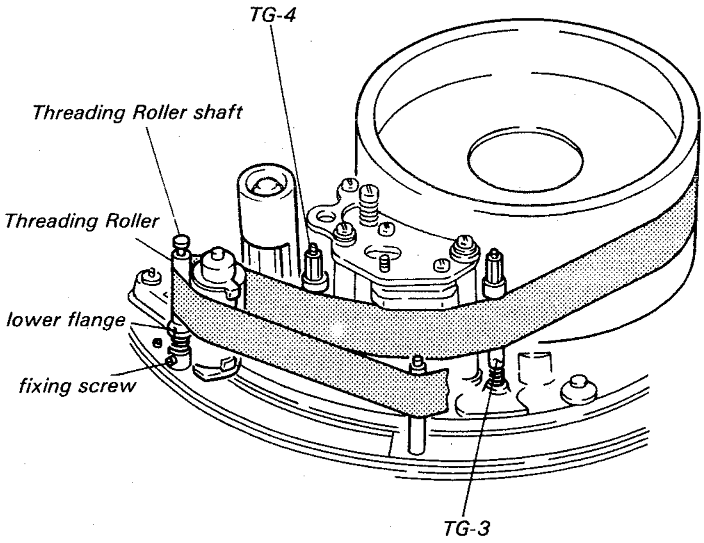
(4) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope at the center of the drum is flat.

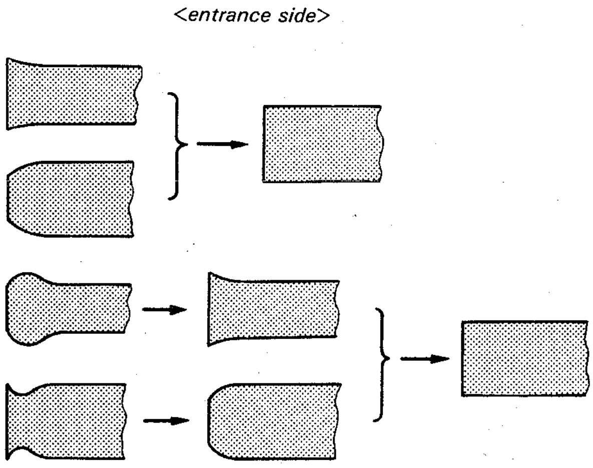
NOTE:

(i) Adjust the slantness adjustment screw (a) in the clockwise direction within a 10 degree angle.

(ii) When the tracking of the center of the drum is adjusted, the RF envelope at the entrance side of the drum should remain flat.







(iii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

(5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.

(6) If the RF envelope is not flat in Steps (4) and (5), adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.

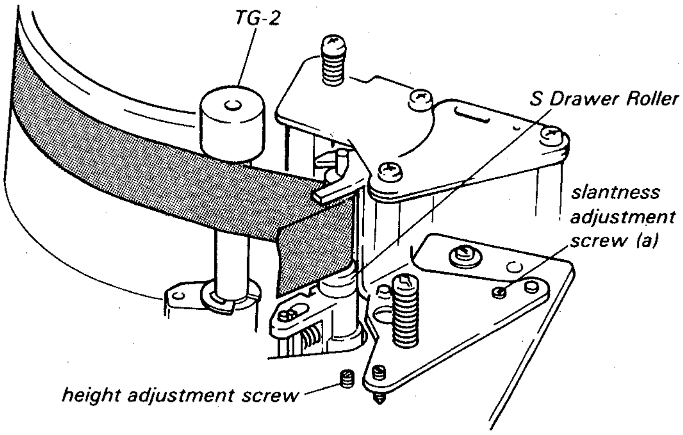
(7) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.

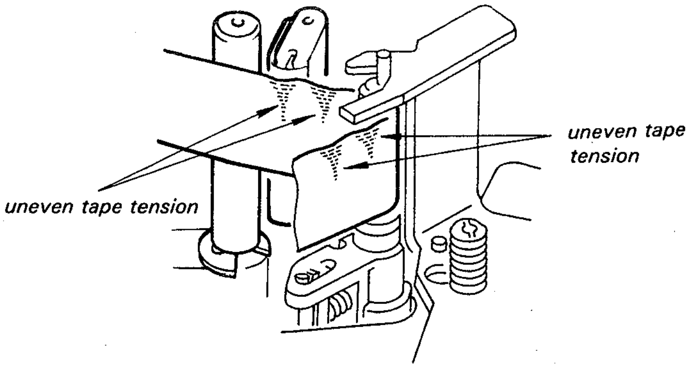
- When loosen the fixing screw of the Threading Roller, press the STOP button. When the Threading Roller comes near the Subring Stopper, turn the power OFF. Loosen the fixing screw of the Threading Roller with a L-shaped hexagonal wrench. After adjustment, tighten the fixing screw and check that it meet the required specification.

- **When tracking at the exit side of the drum is not good.**

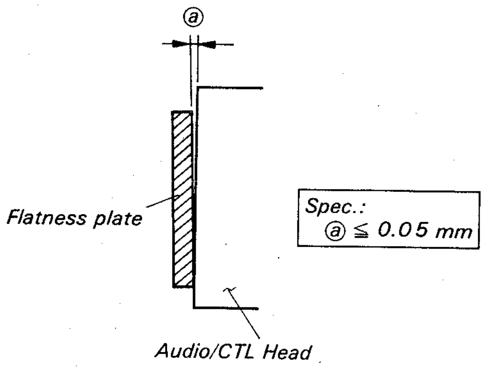
(8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

(9) If the RF envelope is not flat as shown in the figure 1, adjust the height of TG-4 until the RF envelope is flat. After this adjustment, adjust the height of TG-3 so that the tape runs in contact with the upper flange. If the RF envelope is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not, adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.





<zenith adjustment for the Audio/CTL Head>



(10) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.

<exit side>

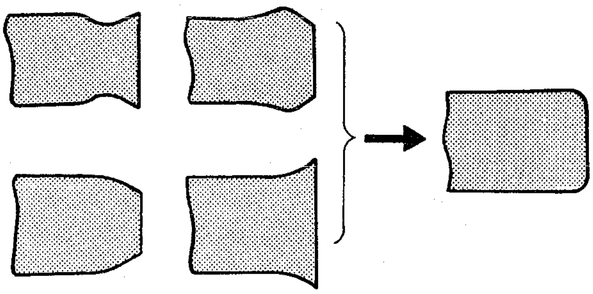
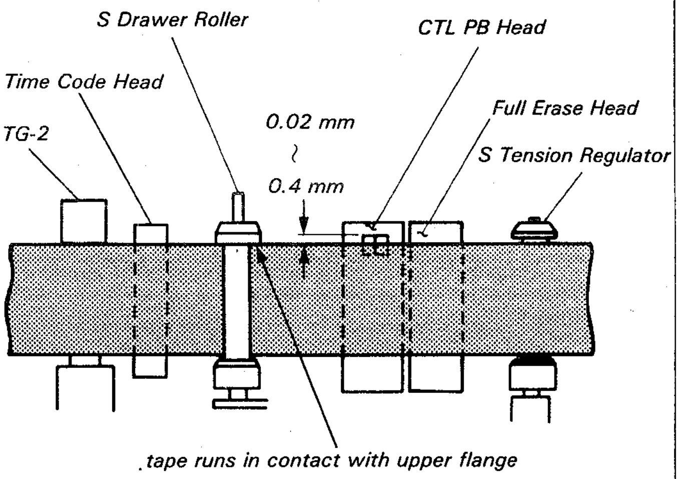
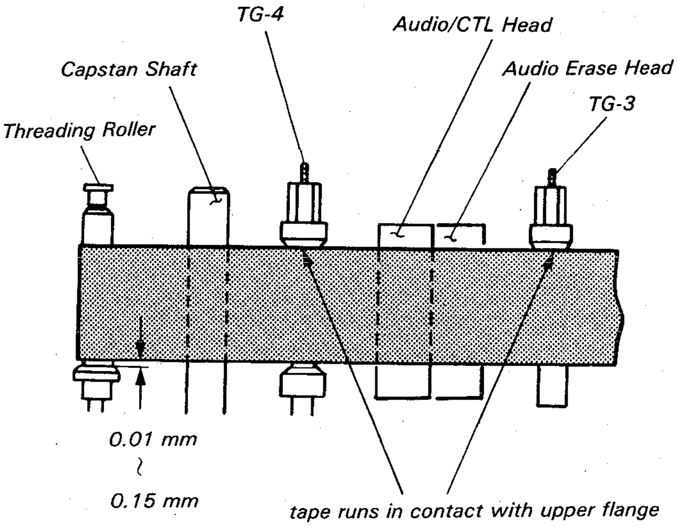


Fig – 1

Fig – 2


S Drawer Roller
CTL PB Head
Time Code Head
Full Erase Head
TG-2
0.02 mm
~
0.4 mm
S Tension Regulator
tape runs in contact with upper flange


TG-4
Audio/CTL Head
Capstan Shaft
Audio Erase Head
TG-3
Threading Roller
0.01 mm
~
0.15 mm
tape runs in contact with upper flange

7-8-2. Full Erase Head Zenith Adjustment

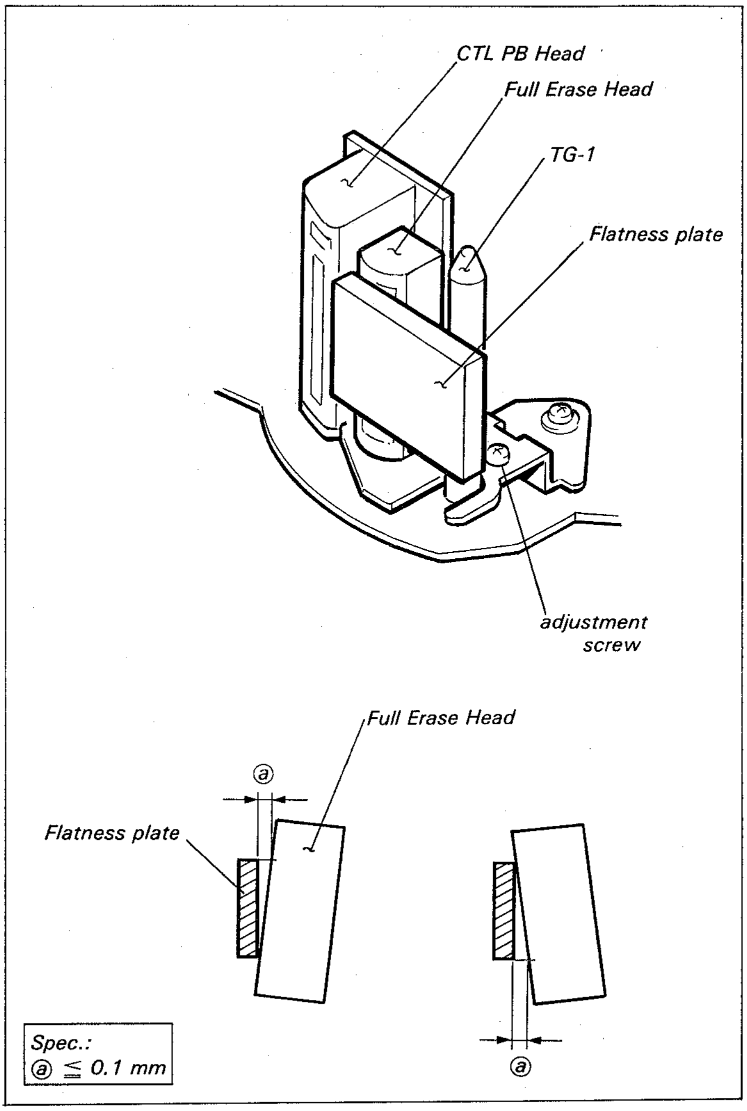
Tool: Flatness plate

Check procedure:

(1) Check that the clearance between the Full Erase Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the Full Erase Head and TG-1.

Adjustment procedure:

(1) Turn the adjustment screw in the clockwise or counterclockwise direction to meet the required specification.


CTL PB Head
Full Erase Head
TG-1
Flatness plate
adjustment screw
Full Erase Head
ⓐ
Flatness plate
ⓐ

Spec.:
ⓐ ≤ 0.1 mm

7-8-3. CTL PB Head Height/Azimuth/Zenith Adjustments

- **The CTL PB Head Height, Azimuth, and Zenith Adjustments are closely related. When performing any of these adjustments, always perform the other two adjustments at the same time.**
- Before initiating this adjustment, perform the Sec. 7-8-2. Full Erase Head Zenith Adjustment.

Tool: Flatness plate

Check procedure:

(1) Check that top and bottom clearances between the CTL PB Head and Full Erase Head meets the required specification. (Spec. 2 : azimuth check)

(2) Check that the clearance between the CTL PB Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the CTL PB Head and Full Erase Head (Spec. 3 :zenith check)

(3) Insert a cassette tape, and put the unit into the PLAY mode.

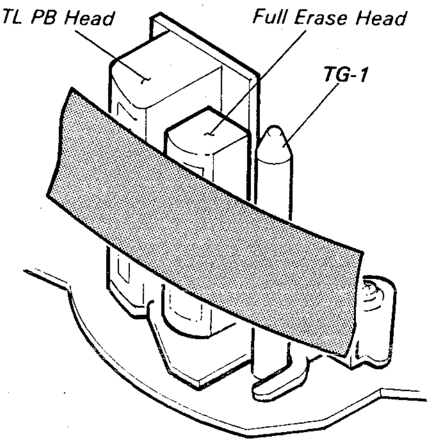
(4) Check that the relationship between the top edge of tape and the CTL PB Head meets the required specification. (Spec. 1 : height check)

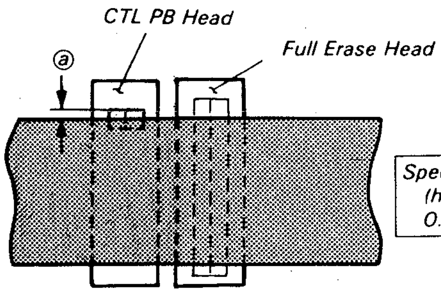
Adjustment procedure:

(1) Adjust azimuth adjustment screw (a) to meet the required specification (2).

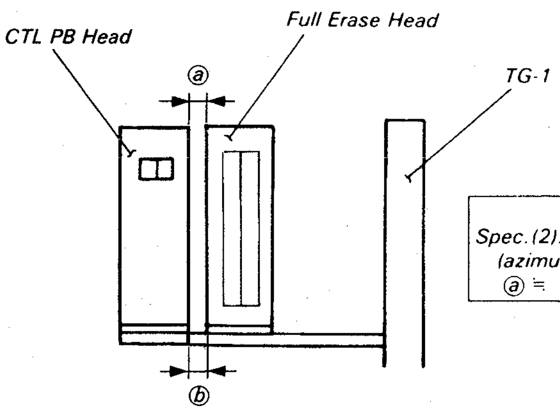
(2) Adjust zenith adjustment screw to meet the required specification (3).

(3) Turn the three adjustment screws an equal amount in the clockwise or counterclockwise direction to meet the required specification (1).

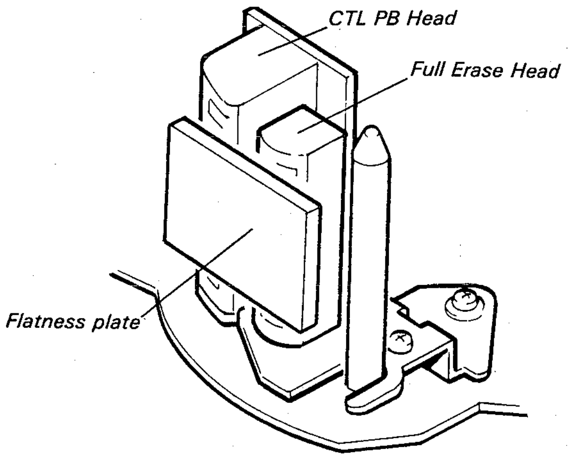


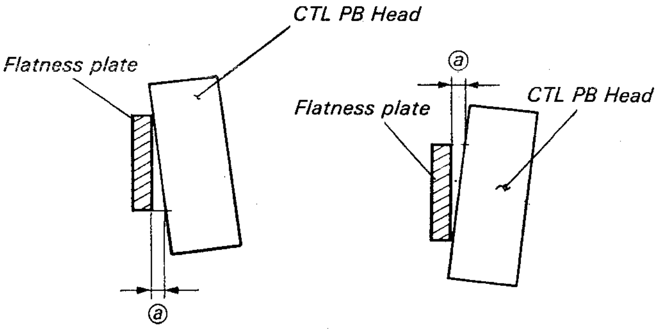


Spec.(1):
(height)
0.02 mm ≦ ⓐ ≦ 0.4 mm

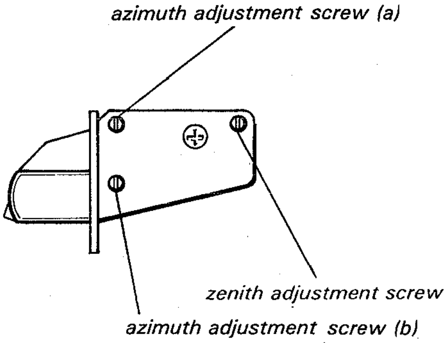


Spec.(2):
(azimuth) ·
ⓐ ≒ ⓑ


CTL PB Head
Full Erase Head
Flatness plate


CTL PB Head
Flatness plate
ⓐ
ⓐ
Flatness plate
CTL PB Head

Spec.(3):
(zenith)
ⓐ ≦ 0.1 mm


azimuth adjustment screw (a)
zenith adjustment screw
azimuth adjustment screw (b)

7-8-4. Audio Head Height Adjustment

Tool: Alignment tape, RR5-1SD PAL
VTVM or oscilloscope

Preparation:

(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.

Check procedure:

(1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down at A. If it is out of the specification, perform adjustment procedures (1) and (2).

(2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up at B. If it is out of the specification, perform adjustment procedures (3) and (4).

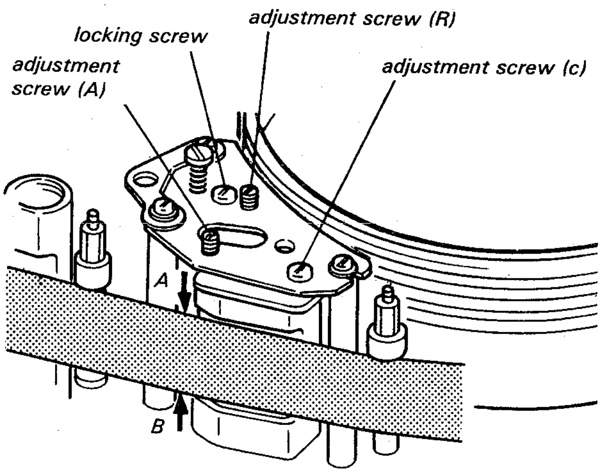
Adjustment procedure:

(1) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the counterclockwise direction. Turn adjustment screw (C) the same amount in the clockwise direction.

(2) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.

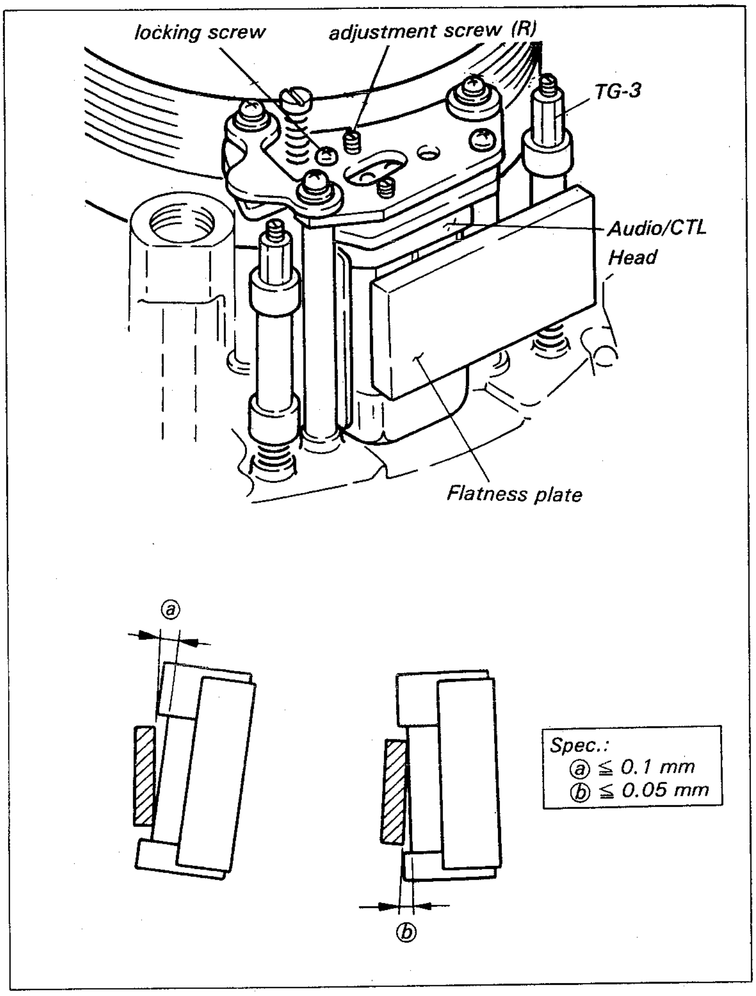
(3) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the clockwise direction. Turn the adjustment screw (C) the same amount in the counterclockwise direction.

(4) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.



Spec.:
- *The level increase of the CH-1 is less than 0.5 dB when pressing down at A.*
- *The level increase of the CH-2 is less than 0.5 dB when pushing up at B.*

7-8-5. Audio Head Zenith Adjustment



Tool: Flatness plate

Check procedure:

(1) When the Flatness Plate is set on the Audio Head and TG-3, check that the clearance between the Audio Head and the Flatness Plate meets the required specification.

Adjustment procedure:

. When the clearance is out of spec. at the top of the Audio Head.

(1) Turn adjustment screw (R) in the counterclockwise direction.

(2) Tighten the locking screw and check the zenith again.

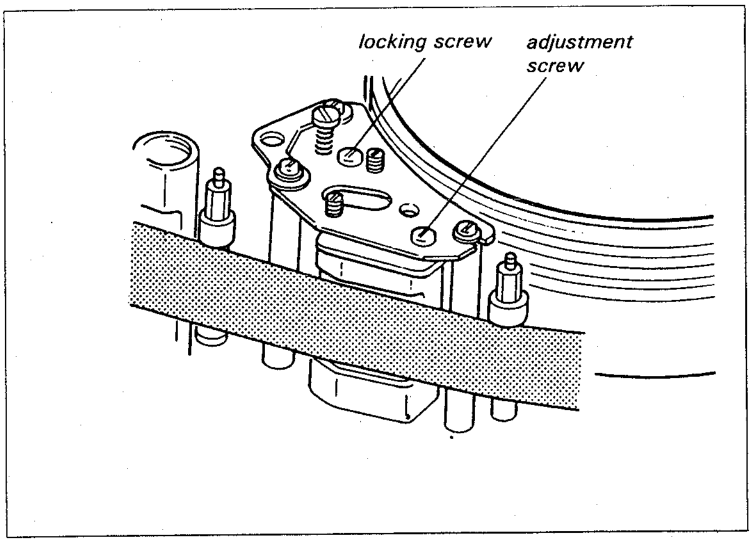
. When the clearance is out of spec. at the bottom of the Audio Head.

(3) Loosen the locking screw 1/4 to 1/2 turn.

(4) Turn adjustment screw (R) in the clockwise direction.

(5) Tighten the locking screw and check the zenith again.

7-8-6. Audio Head Azimuth Adjustment



Tool: Alignment tape, RR5-1SD PAL
VTVM or oscilloscope

Preparation:

(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 or CH-2 connector of the connector panel.

(2) Playback the audio 10 kHz signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the locking screw and adjust the audio output level to maximium by turning the adjustment screw.

(2) Tighten the locking screw and performn the check procedure.

7-8-7. Audio Head Phase Adjustment

Tool: Alignment tape, RR5-1SD PAL
Oscilloscope

Preparation:

(1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.

(3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6 cm.

Check procedure:

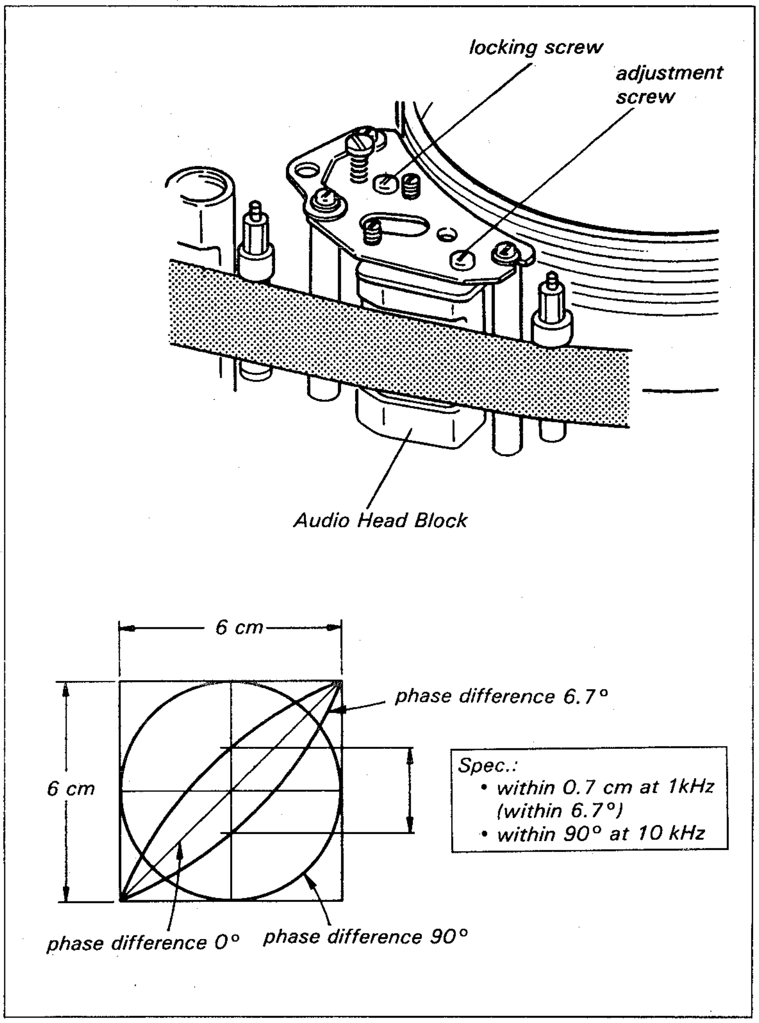
(1) Playback the audio 1 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center in the horizontal direction meets the required specification.

(2) Playback the audio 10 kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

(1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjustment screw.

(2) Tighten the locking screw and check the phase again.


locking screw
adjustment screw
Audio Head Block
6 cm
6 cm
phase difference 6.7°
phase difference 0°
phase difference 90°

Spec.:
- *within 0.7 cm at 1kHz (within 6.7°)*
- *within 90° at 10 kHz*

7-8-8. Audio/CTL Head Position Adjustment

Tool: Alignment tape, RR2-1SD PAL
Oscilloscope
Eccentricity screwdriver (5 mm dia.)

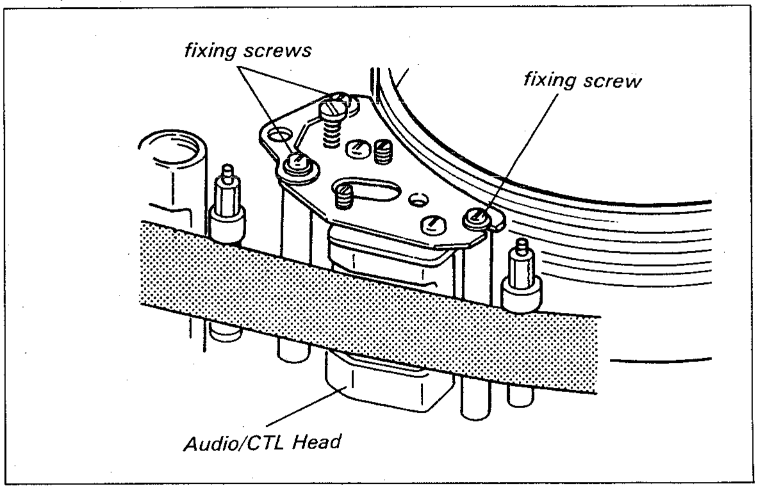
Preparation:

(1) Connect the oscilloscope to TP18 on the DM-72 Board and the EXT.TRIG to TP12 on the SV-112C Board.

(2) Playback the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF envelope has maximum amplitude at the center detent position of the TRACKING control knob.


fixing screws
fixing screw
Audio/CTL Head

7-8-9. Time Code Head Height Adjustment

Tool: Alignment tape, RR5-1SD PAL
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP405 on the NR-31 Board.

(2) Playback the time code signal portion of the alignment tape.

Check procedure:

(1) Check that the level increase is less than 0.5 dB when lightly pressing down or pushing up the fixing screw by hand.

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

- **The level increase is more than 0.5 dB when pushing up the fixing screw.**

(2) Turn the three adjustment screws (Height, Azimuth and Zenith) an equal amount in the counterclockwise direction.

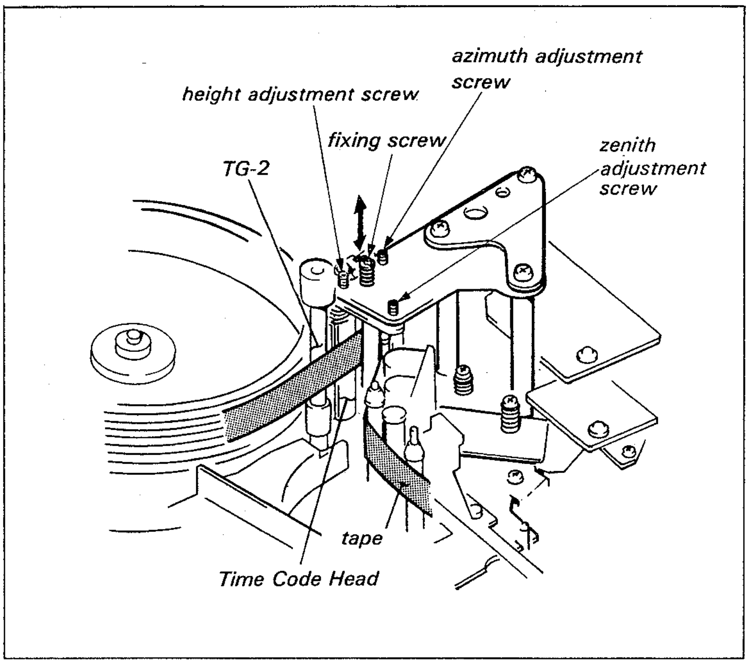
- **The level increase is more than 0.5 dB when pressing down the fixing screw**

(3) Turn the three adjustment screws an equal amount in the clockwise direction.

(4) Tighten the fixing screws and performn the cneck procedure.

(5) After adjustment, perform following adjustments:

Sec.7-3-1. Time Code Head Zenith Adjustment
Sec.7-3-2. Time Code Head Azimuth Adjustment


azimuth adjustment screw
height adjustment screw
fixing screw
zenith adjustment screw
TG-2
tape
Time Code Head

7-8-10. Time Code Head Position Adjustment

Tool: Alignment tape, RR5-1SD PAL
Oscilloscope
Eccentric screwdriver (5 mm dia.)

Preparation:

(1) Connect the oscilloscope as follows.
CH-1 : TP405 / NR-31A
CH-2 : TP4 / SV-112C
TRIG : TP4 / SV-112C

(2) Playback the time code signal portion of the alignment tape.

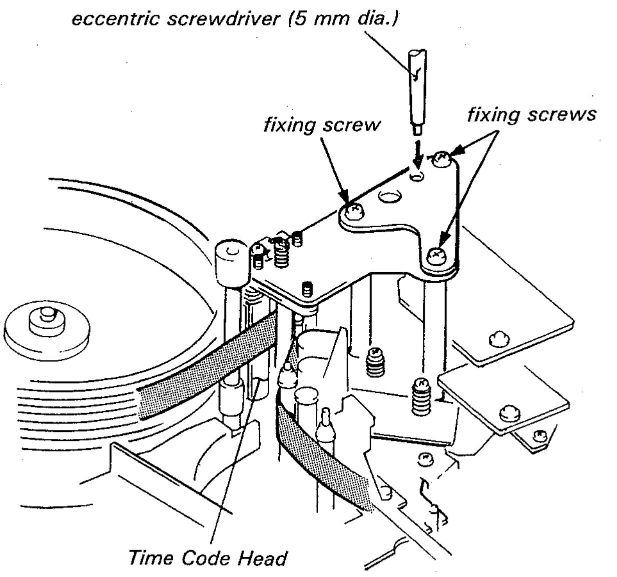
Check procedure:

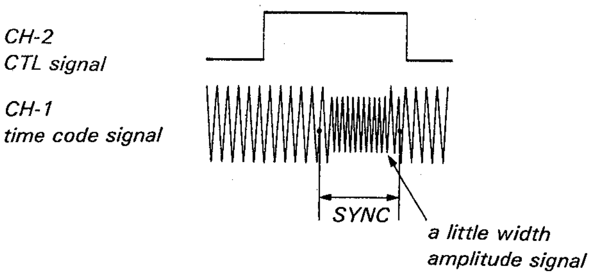
(1) Check that the phase relationship between the CTL signal and the Time Code signal meets the required specification.

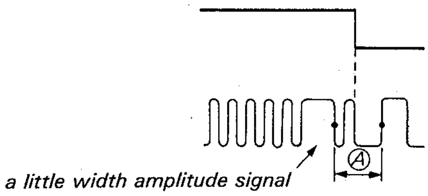
Adjustment procedure:

(1) Loosen the three fixing screws of the Time Code Head Block 1/4 to 1/2 turn.

(2) Adjust the position of the Time Code Head Block with an eccectric screwdriver to meet the required specification.


eccentric screwdriver (5 mm dia.)
fixing screw
fixing screws
Time Code Head


CH-2
CTL signal
CH-1
time code signal
SYNC
a little width amplitude signal


a little width amplitude signal
Ⓐ

Spec. The falling edge is within Ⓐ period.

7-9. VIDEO HEAD DIHEDRAL ADJUSTMENT

Tool: Dihedral adjustment screwdriver
Alignment tape, RR5-1SD PAL
Monitor TV

Check procedure

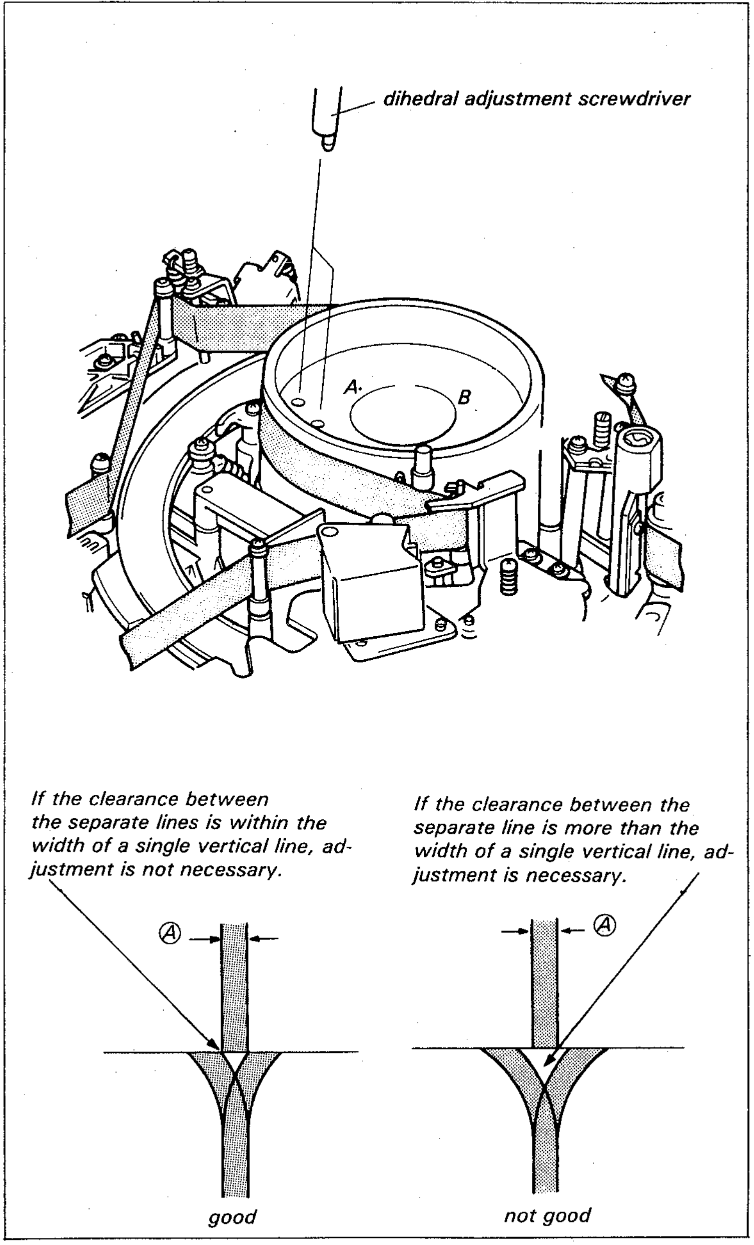
(1) Playback the monoscope signal portion of the alignment tape.

(2) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, then adjustment is necessary.

Adjustment procedure:

(1) Insert an eccentric screwdriver into the adjustment hole of the white lead and perform the dihedral adjustment.

(2) Play back the monoscope signal portion. If the distortion has become worse, insert an eccentric screwdriver in the other adjustment hole and perform the dihedral adjustment.



If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary.

If the clearance between the separate line is more than the width of a single vertical line, adjustment is necessary.

good

not good

SECTION 8

SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- DC Voltmeter.
- Blank Tape.

8-1. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the cassette tape. • STOP mode	TP4/SY-141C(J-1) 6.0±0.2Vdc	⊘RV1/SY-141C(J-1)

8-2. REEL MOTOR STILL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect the DC voltmeter to the reel motor terminal(orange)and the chassis of the reel chassis block. • Set to the PLAY-PAUSE mode without the cassette tape.	0.4±0.02Vdc	⊘RV4/SY-141C(K-1) (Adjust after the reel stops.)

NOTE : Refer to Sec. 6-2 and 6-3 for the adjustment of RV2 and RV3/SY-141C.

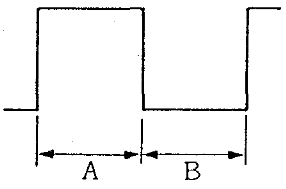
SECTION 9
SERVO SYSTEM ALIGNMENT

[Equipment Required]

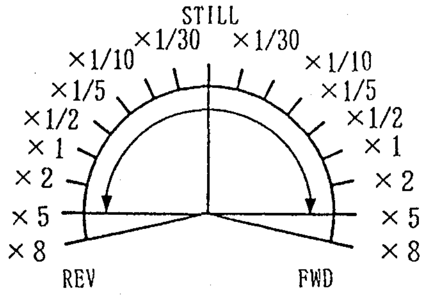
- Dual Trace Oscilloscope.
- Blank Tape : KSP-60
- Alignment Tape : RR2-1SD PAL (Part No. 8-960-036-02) -SP tape-
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	——	OFF	——
3	Gated sweep (B/W)	1kHz, 0dB		——
3	Gated sweep (color)	10kHz, -10dB		——
3	Pulse & Bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		——
		40Hz, -20dB		——
		7kHz, -20dB		——
		10kHz, -20dB		——
		15kHz, -20dB		——
3	Monoscope (color)	1kHz, -20dB	ON	——
		15kHz, -20dB		——
3	Pseudo color bars	——	OFF	Time code

9-1. CAPSTAN FREE SPEED ADJUSTMENT

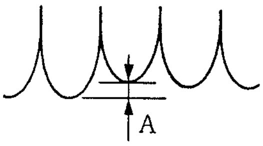
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP3/SV-112C(G-5)  A=B±5% (Take reading at the center of jitter.)	⊘RV100/SV-112C(G-6) TRIG : INT

9-2. CAPSTAN 1/30 SPEED ADJUSTMENT

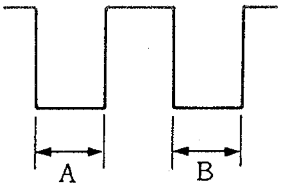
machine conditions for adjustment	specifications	adjustments
• Short between TP11/SY-141C(H-1) and E1/SY-141C(B-11) with a shorting clip. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • SEARCH mode • Turn the SEARCH dial to the optional position except for FWD×8.	TP27/SV-112C(F-4) 60±5Hz SEARCH dial  STILL ×1/30 ×1/30 ×1/10 ×1/10 ×1/5 ×1/5 ×1/2 ×1/2 ×1 ×1 ×2 ×2 ×5 ×5 ×8 ×8 REV FWD	⊘RV101/SV-112C(G-4) TRIG : INT

NOTE : Do not remove the shorting clip on the SY-141C board till indicated.

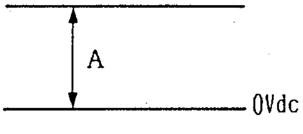
9−3. CAPSTAN STOP SERVO ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Short between TP16/SV-112C(H-5) and TP19/SV-112C(H-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP21/SV-112C(H-4)  A≦0.04V	⊘RV106/SV-112C(J-4) TRIG : INT

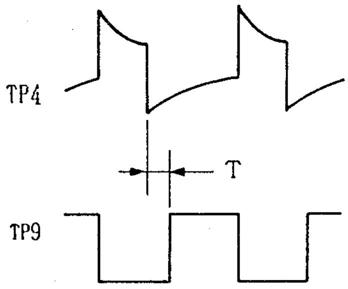
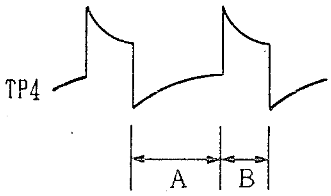
9−4. CAPSTAN STOP SERVO ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP25/SV-112C(F-4)  A=B±10%	⊘RV201/SV-112C(J-5) TRIG : INT

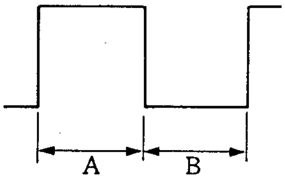
9−5. CAPSTAN STOP SERVO ADJUSTMENT (3)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY-PAUSE mode • Short between TP6/SV-112C(K-3) and TP22/SV-112C(H-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	TP26/SV-112C(E-6)  A=1.0±0.1Vdc	⊘RV107/SV-112C(H-5) TRIG : INT

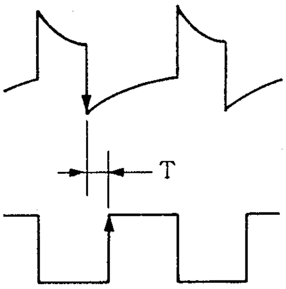
9-6. TRACKING CONTROL MULTI AND CTL POLARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP4/SV-112C(L-6) TP9/SV-112C(L-5) Step 1  $T = 0 \pm 100\,\mu$sec (Take reading at the center of jitter.) Step 2  A > B (check)	⊘RV406/SV-112C(G-7) TRIG : TP9/SV-112C(L-5)

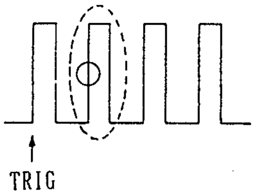
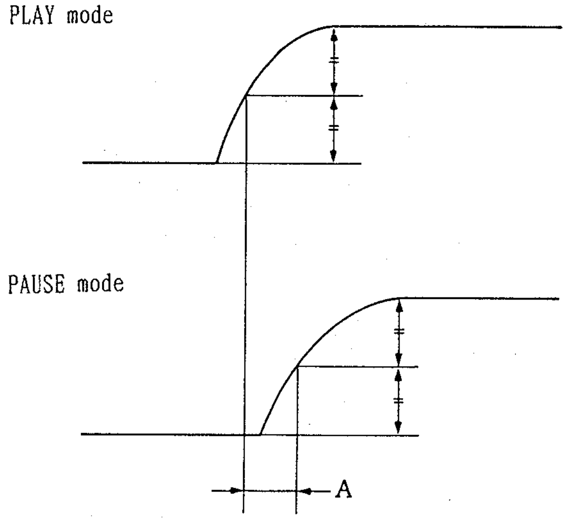
9-7. DRUM FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP15/SV-112C(E-7)  A = B ±5%	⊘RV402/SV-112C(N-7) TRIG : INT

9-8. INSTANT START ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • SEARCH mode • Turn the SEARCH dial to the FWD×8 position. (Refer to the Sec. 9-2 CAPSTAN 1/30 SPEED ADJUSTMENT.) • After the adjustment is completed, remove the shorting clip on the SY-141C board.	TP4/SV-112C (L-6) TP9/SV-112C (L-5)  T = 0 ± 1 msec (Take reading at the center of jitter.)	⊘RV102/SV-112C (H-7) TRIG : TP9/SV-112C (L-5)

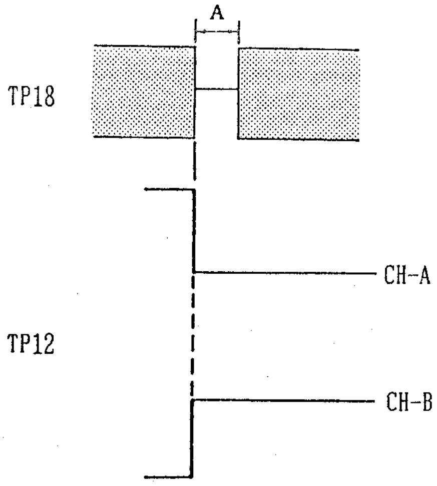
9-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY and PAUSE modes	TP8/SV-112C (M-6)  NOTE : Magnify the second wave.  A = 0 ±0.1 μsec	⊘RV2/SV-112C (G-7) (If it is difficult to catch the wave, adjust at TRACKING.) TRIG : INT

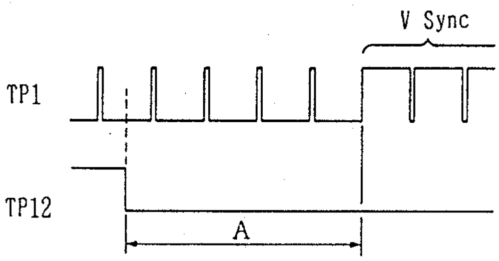
9－10. DRUM AFC TRANSIENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • PLAY and PAUSE modes	TP17/SV-112C(D-7) difference between PLAY mode and PAUSE mode 0 ±0.1Vdc [Reference Procedure] ① When PAUSE mode, set the wave of TP17 to the center position of oscilloscope by DC. ② Adjust RV1 so as to set to the same position of PAUSE mode in five seconds when PLAY mode.	⊘RV1/SV-112C(F-7) TRIG : INT

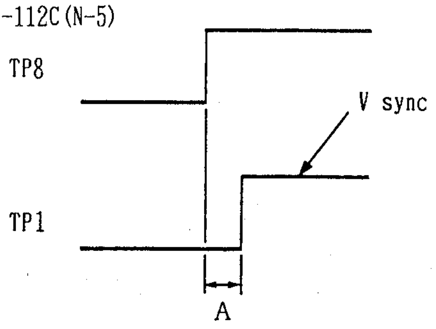
9－11. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP5/SV-112C(M-7), TP8/SV-112C(M-6) and GND with shorting clips. • Play back the alignment tape RR2-1 SD PAL. • Adjust the TRACKING volume so that the RF output wave can be maximum. Step 2. • Change the trigger of oscilloscope to (+) and (−). • After the adjustment is completed, remove the shorting clips.	TP18/DM-72(C-7) TP12/SV-112C(C-7)  A≦10μsec	CH-A : ⊘RV405/SV-112C(J-7) CH-B : ⊘RV404/SV-112C(M-6) TRIG : TP12/SV-112C(C-7)

9-12. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector: color-bar • INPUT SELECT SW: LINE • Insert the KSP-60 tape. • Short between TP8(M-6), TP5(M-7) and E3(N-7)/SV-112C with shorting clips. • REC mode • After the adjustment is completed, remove the shorting clips.	TP1/SV-112C(N-5) TP12/SV-112C(C-7)  A = 2.25 ± 0.2H • Change to the trigger(−) side of oscilloscope, and then confirm to meet the specification.	⊘RV402/SV-112C(N-7) TRIG : TP12/SV-112C(C-7)

9-13. REC VD ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP5/SV-112C(M-7) and GND with a shorting clip. • VIDEO IN connector : color-bar • INPUT SELECT SW : LINE • Insert the KSP-60 tape. • REC mode • After the adjustment is completed, remove the shorting clip.	TP8/SV-112C(M-6) TP1/SV-112C(N-5)  A = 0 ± 5 μsec (Take reading at the center of jitter.)	⊘RV900/SV-112C(N-6)

SECTION 10
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Voltmeter.
- Audio Attenuator.
- Blank Tape : KCA, KCS and KSP. (When adjusting, use KCA and KCS unless otherwise specifically indicated.)
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	——	OFF	——
3	Gated sweep (B/W)	1kHz, 0dB		——
3	Gated sweep (color)	10kHz, -10dB		——
3	Pulse & Bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		——
		40Hz, -20dB		——
		7kHz, -20dB		——
		10kHz, -20dB		——
		15kHz, -20dB		——
3	Monoscope (color)	1kHz, -20dB	ON	——
		15kHz, -20dB		——
3	Pseudo color bars	——	OFF	Time code

[NOTE]
- 0dBu=0.775Vrms

[Switch Setting]
Front Panel
- AUDIO LIMITER sw …… OFF

Do not move this switch unless otherwise specified.

10-1. EE LEVEL ADJUSTMENT

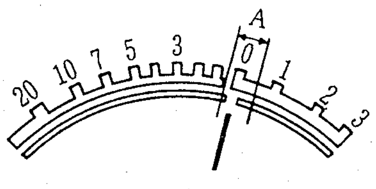
machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	CH-1 : TP13/NR-31A(A-1) CH-2 : TP113/NR-31A(E-1) GND : E11/NR-31A(D-1) -10.0±0.2dBu	• CH-1 AUDIO LEVEL control • CH-2 AUDIO LEVEL control

NOTE : This position should not be moved till the Audio System Alignment is completed.

10-2. EE LINE OUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0±0.3dBm	CH-1: ⊘RV11/NR-31A(A-1) CH-2: ⊘RV111/NR-31A(B-1)

10-3. AUDIO LEVEL METER ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	AUDIO LEVEL meter  A＝0 ±0.5dB	CH-1: ⊘RV51/AU-124A(C-5) CH-2: ⊘RV251/AU-124A(C-5)

10-4. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LIMITER SW : ON • MIC IN CH-1, CH-2 : 1kHz, -30dBu • EE mode	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +7.0±0.3dBm	CH-1: ⊘RV1/AU-124A(D-3) CH-2: ⊘RV201/AU-124A(D-3)

10-5. ALIGNMENT TAPE PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Play back the audio frequency response segment of the alignment tape RR5-1SD PAL.</td>
<td>AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>1 kHz</td><td>0 dB (REF)</td></tr>
<tr><td>7 kHz</td><td>0 ±0.5dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.4}_{-0.6}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.4}_{-1.0}$dB</td></tr>
</table>
</td>
<td>CH-1:
• 7kHz Level
⊘RV102/AU-124A (J-5)

• 15kHz Level
⊘RV103/AU-124A (J-3)
⊘RV154/AU-124A (J-5)

CH-2:
• 7kHz Level
⊘RV302/AU-124A (H-5)

• 15kHz Level
⊘RV303/AU-124A (H-3)
⊘RV354/AU-124A (H-6)</td>
</tr>
</table>

10-6. ALIGNMENT TAPE PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD PAL.	CH-1 : TP13/NR-31A (A-1) CH-2 : TP113/NR-31A (E-1) -10.0±0.2dBu	CH-1 : ⊘RV104/AU-124A (J-3) CH-2 : ⊘RV304/AU-124A (J-3)

10-7. ALIGNMENT TAPE PB LINE OUT LEVEL CHECK

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD PAL.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0±0.5dBm	

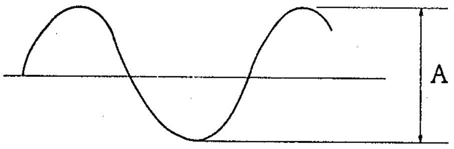
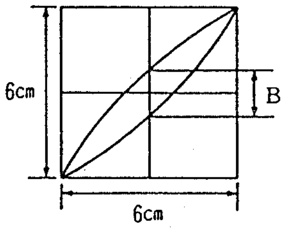
10-8. DOLBY DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• STOP mode	CH-1 : between TP314/NR-31A(M-1) and TP315/NR-31A (M-1) CH-2 : between TP316/NR-31A(N-1) and TP317/NR-31A (M-1) DC voltage difference= 0 ±0.1Vdc	CH-1 : ⊘RV315/NR-31A(N-1) CH-2 : ⊘RV316/NR-31A(M-1)

10-9. DOLBY DETECT LEVEL ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• STOP mode	TP318/NR-31A(K-1) E211/NR-31A(L-1) DC voltage=3.5±0.05Vdc	⊘RV317/NR-31A(K-1)

10-10. PB PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the AUDIO NR ON segment of the alignment tape RR5-1SD.	TP312/NR-31A(K-1) TP313/NR-31A(L-1)  $A= 0.5^{+0.1}_{-0}$ Vp-p	⊘RV313/NR-31A(K-1) ⊘RV314/NR-31A(M-1)
• Connect CH-1 of oscilloscope to TP311/NR-31A(L-1), and CH-2 of oscilloscope to TP312/NR-31A(K-1) to be displayed Lissajous' wave. Adjust the X and Y axes' amplitude. • After the adjustment is completed, connect the oscilloscope to TP311/NR-31A(L-1) and TP313/NR-31A(L-1), and then perform the same check.	 Phase Difference : direction of 0° or 180° B=less than 1.5cm(15°)	⊘RV312/NR-31A(L-1)

10-11. FULL ERASE OSC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	TP601/AU-124A (A-7) GND : E601/AU-124A (A-4) Level : 220±30mVrms (Check) Frequency : 71±2kHz	⊘RV604/AU-124A (B-3)

10-12. AUDIO ERASE OSC FREQUENCY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	TP602/AU-124A (B-7) GND : E601/AU-124A (A-4) 71±0.2kHz (Check) Level : 230±30mVrms	⊘LV601/AU-124A (C-6)

10-13. AUDIO DUB ERASE OSC FREQUENCY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • DUB mode	TP602/AU-124A (B-7) GND : E601/AU-124A (A-4) 71±0.2kHz	⊘LV602/AU-124A (A-6)

10-14. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1: TP151/AU-124A (K-7) GND : E151/AU-124A (H-6) CH-2: TP351/AU-124A (G-6) GND : E151/AU-124A (H-7) Minimize the level. (less than -10dBu)	CH-1 : ⊘LV151/AU-124A (J-6) CH-2 : ⊘LV351/AU-124A (J-6) • Adjust from the component side.

10−15. REC BIAS CURRENT ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP101/AU-124A (J-7) GND : TP102/AU-124A (J-7) CH-2 : TP301/AU-124A (H-7) GND : TP302/AU-124A (H-6) 12.0±0.5mVrms	CH-1 : ⊘RV601/AU-124A (B-5) CH-2 : ⊘RV602/AU-124A (B-5)

10−16. REC BIAS CURRENT ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KCA-60 tape. • REC mode	CH-1 : TP101/AU-124A (J-7) GND : TP102/AU-124A (J-7) CH-2 : TP301/AU-124A (H-7) GND : TP302/AU-124A (H-6) 9.0±0.5mVrms Adjust to meet the specification at CH-1 and CH-2.	⊘RV603/AU-124A (A-3)

10−17. DUB BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 (no signal) tape. • DUB mode	TP303/AU-124A (G-5) GND : E151/AU-124A (H-7) Minimize the level. (less than -18dBu)	⊘LV301/AU-124A (H-6)

10-18. REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, -16dBu • Insert the KSP-60 tape. • REC mode • Short between TP603/AU-124A(B-3) and E601/AU-124A(A-4) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	CH-1: TP152/AU-124A(K-6) GND : E151/AU-124A(H-7) CH-2: TP352/AU-124A(H-6) GND : E151/AU-124A(H-7) -16±1dBu	CH-1 : ⊘RV152/AU-124A(K-4) CH-2 : ⊘RV352/AU-124A(G-3)

10-19. CH-1 REC EQ ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
Step 1. • AUDIO LINE IN CH-1 : 1kHz, -16dBu • Short between TP603/AU-124A(B-3) and E601/AU-124A(A-4) with a shorting clip. • Turn RV151/AU-124A(L-5) fully clockwise. • Insert the KSP-60 tape. • REC mode	TP152/AU-124A(K-6) GND : E151/AU-124A(H-7) Read the value of AC voltmeter. This value is A dBu.	
Step 2. • AUDIO LINE IN CH-1 : 21kHz, -16dBu • Continue the state of Step 1. • After the adjustment is completed, remove the shorting clip.	TP152/AU-124A(K-6) GND : E151/AU-124A(H-7) ①Maximize the level. ②A(Step 1)+21±0.5dB	① ⊘LV152/AU-124A(L-4) • Adjust from the component side. ② ⊘RV151/AU-124A(K-4)

10-20. CH-2 REC EQ ADJUSTMENT (SP TAPE)

Conditions for adjustment	Specifications	Adjustments
Step 1. ・AUDIO LINE IN CH-2 : 1kHz, -16dBu ・Short between TP603/AU-124A(B-3) and E601/AU-124A(A-4) with a shorting clip. ・Turn RV351/AU-124A(G-3) fully clockwise. ・Insert the KSP-60 tape. ・REC mode	TP352/AU-124A(H-6) GND : E151/AU-124A(H-7) Read the value of AC voltmeter. This value is A dBu.	
Step 2. ・AUDIO LINE IN CH-2 : 21kHz, -16dBu ・Continue the state of Step 1. ・After the adjustment is completed, remove the shorting clip.	TP352/AU-124A(H-6) GND : E151/AU-124A(H-7) ①Maximize the level. ②A(Step 1)+21±0.5dB	① ⊘LV352/AU-124A(G-4) ・Adjust from the component side. ② ⊘RV351/AU-124A(G-4)

10-21. CH-1 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>Step 1.
・AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
・DOLBY SW : OFF
・Insert the KSP-60 tape.
・Record each frequency for 15 seconds.
・Rewind and play back the recorded portion.</td><td>AUDIO LINE OUT CH-1(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>7 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.8}_{-1.0}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.6}_{-1.2}$dB</td></tr>
</table>
</td><td></td></tr>
<tr><td>Step 2.</td><td>When 7~15kHz doesn't meet the specification:
1. AUDIO LINE IN : no signal
2. Measure the value of TP101/AU-124A(J-7) (GND : TP102/AU-124A(J-7)) by AC voltmeter.
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias current at RV601/AU-124A (B-5) within the limits of 8~15mVrms.
NOTE: When the high frequency is lower than the specification, lower the bias voltage.
6. Perform Step 1 and then confirm that the frequency response meets the specification.

When 15kHz doesn't meet the specification:
1. Short between TP603/AU-124A(B-3) and E601/AU-124A(A-4) with a shorting clip.
2. Measure the value of TP152/AU-124A(K-6) (GND : E151/AU-124A(H-7) by AC voltmeter.
3. AUDIO LINE IN CH-1 : 15kHz, -16dBm
4. Insert the KSP-60 tape.
5. REC mode. Read the value of the AC voltmeter(A dBu).
6. Add to A for the level which doesn't meet the specification of 15kHz.
7. Readjust the value of 5. at RV151/AU-124A (L-5).
8. Perform Step 1 and confirm that the frequency response meets the specification.</td><td></td></tr>
</table>

10-22. CH-2 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>Step 1.
• AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
• DOLBY SW : OFF
• Insert the KSP-60 tape.
• Record each frequency for 15 seconds.
• Rewind and play back the recorded portion.</td>
<td>AUDIO LINE OUT CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>7 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.8}_{-1.0}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.6}_{-1.2}$dB</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td>Step 2.</td>
<td>When 7~15kHz doesn't meet the specification:
1. AUDIO LINE IN : no signal
2. Measure the value of TP301/AU-124A(H-7) (GND : TP302/AU-124A(H-6)) by AC voltmeter.
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias current at RV602/AU-124A (B-5) within the limits of 8~15mVms.
NOTE: When the high frequency is lower than the specification, lower the bias voltage.
6. Perform Step 1 and then confirm that the frequency response meets the specification.

When 15kHz doesn't meet the specification:
1. Short between TP603/AU-124A(B-3) and E601/AU-124A(A-4) with a shorting clip.
2. Measure the value of TP352/AU-124A(H-6) (GND : E151/AU-124A(H-7)) by AC voltmeter.
3. AUDIO LINE IN CH-2 : 15kHz, -16dBm
4. Insert the KSP-60 tape.
5. REC mode. Read the value of the AC voltmeter(A dBu).
6. Add to A for the level which doesn't meet the specification of 15kHz.
7. Readjust the value of 5. at RV352/AU-124A (G-3).
8. Perform Step 1 and confirm that the frequency response meets the specification.</td>
<td></td>
</tr>
</table>

10-23. CONVENTIONAL TAPE OVERALL FREQUENCY RESPONSE CHECK

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• AUDIO LINE IN CH-1, CH-2 : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
• Insert the KCA-60 tape.
• Record each frequency for 20 seconds.
• Rewind and play back the recorded portion.</td>
<td>AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0^{+3}_{-4}dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±1.5dB</td></tr>
<tr><td>7 kHz</td><td>0 ±1.5dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+1.4}_{-1.6}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+1.7}_{-2.3}$dB</td></tr>
</table>
</td>
<td></td>
</tr>
</table>

NOTE : When not to meet the specification, perform Sec. 10-16 REC BIAS CURRENT ADJUSTMENT(CONV TAPE).
When the high frequency is lower than the specification, lower the bias voltage.

10-24. REC LEVEL ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • Insert the KSP-60 tape. • REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31A(A-1) CH-2 : TP113/NR-31A(E-1) -10±0.3dBu After the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0±0.3dBm	CH-1 : ⊘RV152/AU-124A(K-4) CH-2 : ⊘RV352/AU-124A(G-3)

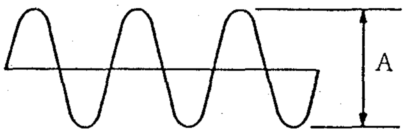
10-25. REC LEVEL ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • Insert the KCA-60 tape. • REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31A(A-1) CH-2 : TP113/NR-31A(E-1) -10±0.5dBu Affer the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0±0.5dBm	CH-1 : ⊘RV153/AU-124A(L-3) CH-2 : ⊘RV353/AU-124A(F-3)

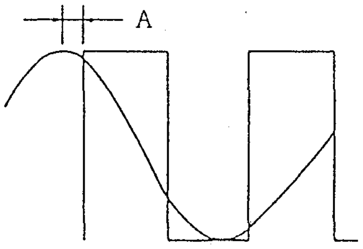
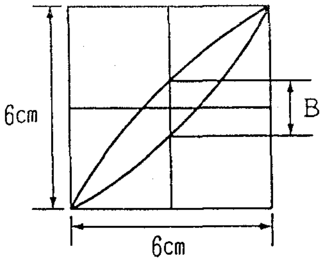
10-26. CROSSTALK CANCELER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1 : 5kHz, +4dBu • Insert the KSP-60 tape(no signal) with CTL. • DUB mode.	AUDIO LINE OUT CH-2(terminated by 600Ω) Minimize the level. (less than -18dBm)	⊘RV301/AU-124A(K-5)

10-27. OA PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : no signal • DOLBY SW : ON • Insert the KSP-60 tape. • REC mode	CH-1 : TP152/AU-124A(K-6) GND : E151/AU-124A(H-7) CH-2 : TP352/AU-124A(H-6) GND : E151/AU-124A(H-7) Adjust to -22±1dBu temporarily.	CH-1 : ⊘RV211/NR-31A(F-1) CH-2 : ⊘RV212/NR-31A(F-1)
• Record for 10 seconds. • Rewind and play back the recorded portion.	CH-1 : TP312/NR-31A(K-1) GND : E211/NR-31A(L-1) CH-2 : TP313/NR-31A(L-1) GND : E211/NR-31A(L-1)  A=0.6±0.05V	CH-1 : ⊘RV211/NR-31A(F-1) CH-2 : ⊘RV212/NR-31A(F-1)

10-28. OA PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : no signal • DOLBY SW : ON • Insert the KSP-60 tape. • REC mode	CH-1 : TP311/NR-31A(L-1) GND : E211/NR-31A(L-1) CH-2 : TP211/NR-31A(H-1) GND : E211/NR-31A(L-1)  (Adjust) A = 0 ±2.7msec temporarily.	⊘RV311/NR-31A(L-1)
• Record for 10 seconds. • Rewind and play back the recorded portion • PB→Check REC→Adjustment	CH-1 : TP311/NR-31A(L-1) CH-2 : TP312/NR-31A(K-1)  Perform the fine tuning so as to be B≦1.5cm (15°). Adjust performing PB and REC repeatedly.	⊘RV311/NR-31A(L-1) TRIG : TP311/NR-31A (L-1)

SECTION 11
VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- PAL signal generator(TEKTRONIX1411 or equivalent).
- Vectorscope.
- DC voltmeter.
- Frequency counter.
- Video sweep signal generator.
- Spectrum analyzer.
- Cassette Tape : KCA, KCS and KSP.
- Alignment Tape : RR5-1SD PAL(Part No. 8-960-036-80)
  -SP tape-

TIME	VIDEO	AUDIO		TIME CODE
			NR	
5	Color bars	——	OFF	——
3	Gated sweep(B/W)	1kHz, 0dB		——
3	Gated sweep(color)	10kHz, -10dB		——
3	Pulse & Bar(color) (MOD 10T and inverted 2T)	1kHz, -20dB		——
		40Hz, -20dB		——
		7kHz, -20dB		——
		10kHz, -20dB		——
		15kHz, -20dB		——
3	Monoscope(color)	1kHz, -20dB	ON	——
		15kHz, -20dB		——
3	Pseudo color bars	——	OFF	Time code

- Alignment Tape : RR5-2SB PAL (Parts No. 8-960-020-62)
  -High-band tape-

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	3kHz, 0dB	1kHz
5	R-F sweep	——	——
5	Monoscope	——	——
2.5	Modulated 20T pulse	1kHz, 0dB	——
2.5	R-F 8MHz	10kHz, -10dB	——

- Alignment Tape : RR5-2SC PAL (Part No. 8-960-035-61)
  -Low-band tape-

REAL TIME Counter(min)	TAPE COUNTER	VIDEO TRACK	AUDIO TRACK
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	——
09:00-14:00	208-300	R-F sweep	——
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	Monoscope(color)	10kHz, -10dB
18:00-20:00	367-398	Pseudo C. B. for DOC adj.	——

[Switch Setting]

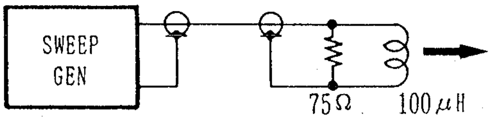
Front Panel
- VIDEO LEVEL sw··························AUTO
- INPUT SELECT sw························LINE

Connector Panel
- VIDEO IN 75 Ω sw ·····················ON

Do not move these switches unless otherwise specified.

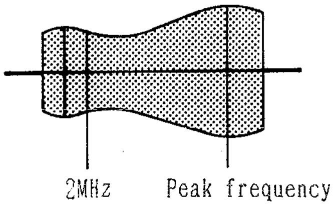
11-1. PB RF FREQUENCY RESPONSE ADJUSTMENT (1)

To make this adjustment, the head drum rotation is stopped without a cassette tape, and the sweep signal is L-coupled to the video head using an inductor (approximately 100μH).



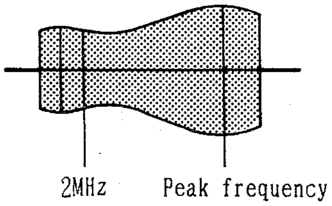
Sweep signal band width : 1 to 10MHz

Step1. CH-A RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Short between TP3/DM-72(D-6) and GND with a shorting clip.
• Short between 1 Pin:IC1/DM-72(E-8) and GND(E2)with a shorting clip.
• Short between TP8/MD-60A(G-5) and TP9/MD-60A(G-5) with a shorting clip.
• Couple a sweep signal to the video head(CH-A).
• Adjust the sweep signal generator output so that the signal level in about 250mVp-p.
• After the adjustment is completed, remove the shorting clips.</td><td>TP7/RP-40C(D-1)


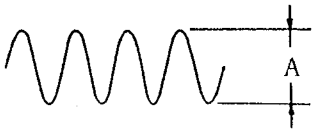
<table><tr><td>2MHz</td><td>Peak frequency</td></tr><tr><td>100%
(reference)</td><td>120±5%</td></tr></table></td><td>⊘RV4/RP-40C(D-2)
TRIG : Trigger output/ sweep generator</td></tr>
</table>

Step2. CH-B RF frequency response adjustment

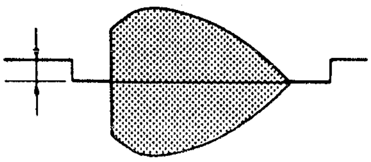
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Short between TP3/DM-72(D-6) and GND with a shorting clip.
• Short between 1 Pin:IC1/DM-72(E-8) and GND(E2)with a shorting clip.
• Short between TP8/MD-60A(G-5) and TP9/MD-60A(G-5) with a shorting clip.
• Couple a sweep signal to the video head(CH-B).
• Adjust the sweep signal generator output so that the signal level is about 250mVp-p.
• After the adjustment is completed, remove the shorting clips.</td><td>TP10/RP-40C(D-1)


<table><tr><td>2MHz</td><td>Peak frequency</td></tr><tr><td>100%
(reference)</td><td>120±5%</td></tr></table></td><td>⊘RV6/RP-40C(D-1)
TRIG : Trigger output/ sweep generator</td></tr>
</table>

11-2. AUDIO BIAS TRAP ADJUSTMENT

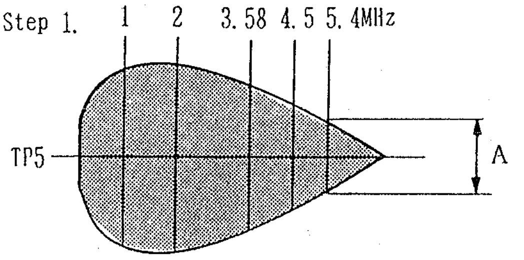
machine conditions for adjustment	specifications	adjustments
• Insert the tape on which only a CTL signal is recorded (Video signal is not being recorded on the tape). • AUDIO CH-1 INSERT mode.	TP511/DM-72(B-5) Minimize the bias leak A. 	⊘LV501/DM-72(B-6)

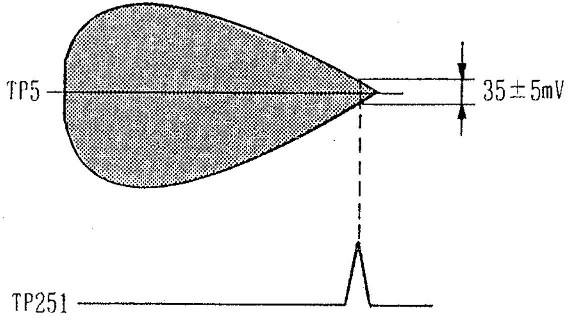
11-3. RF AMPLIFIER DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP8/SV-112C(M-6) and GND with a shorting clip. • Play back the RF sweep segment of the alignment tape RR5-2SB PAL. • Fully turn RV1/DM-72(C-7) counter-clockwise from the component side. • After the adjustment is completed, remove the shorting clip.	TP17/DM-72(C-8)  Equalize the dc level in both channels.	⊘RV1/DM-72(C-7) TRIG : TP4/DM-72(D-7)

11-4. DROPOUT COMPENSATION SENSITIVITY ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>
- Play back the RF sweep segment of the alignment tape RR5-2SB PAL.

- Short between TP8/SV-112C(M-6) and GND with a shorting clip.
</td>
<td>
CH-1 : TP5/DM-72(F-9)
CH-2 : TP251/DM-72(F-7)
Step 1.


A=300mV
Step 2.


Appear DOC pulse at 35±5mV level.
</td>
<td>
Step 1.
⊘RV5/DM-72(B-8)

Step 2.
⊘RV251/DM-72(E-7)

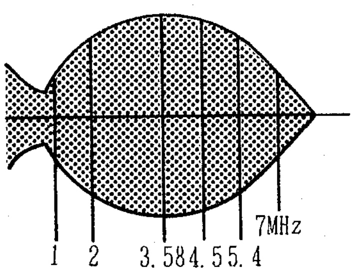
TRIG : TP4/DM-72(D-7)
</td>
</tr>
</table>

11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT (2)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>
- Short between TP8/SV-112C(M-6) and GND with a shorting clip.

- Play back the RF sweep segment of the alignment tape RR5-2SB PAL.

- Maximize the RF level at TP5/DM-72 using a TRACKING control.

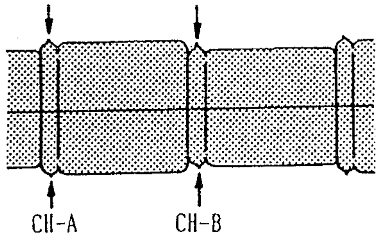
- After the adjustment is completed, return the TRACKING control to the center click position and remove the shorting clip.
</td>
<td>
TP3/DM-72(D-6)


<table>
<tr><td>2MHz</td><td>4.5MHz</td><td>7MHz</td></tr>
<tr><td>100%
(reference)</td><td>(80
±10%)</td><td>55
±4%</td></tr>
</table>
</td>
<td>
CH-A : ⊘RV3/DM-72(A-7)
CH-B : ⊘RV2/DM-72(C-7)

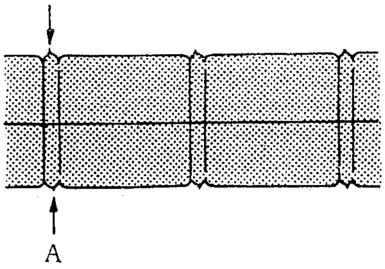
TRIG : TP4/DM-72(D-7)
</td>
</tr>
</table>

After this adjustment is completed, confirm the section 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the section 11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

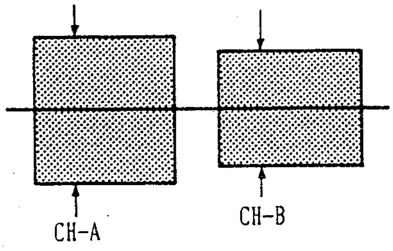
11-6. Y RF OUTPUT BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP5/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-72 (F-9)  Sync tip level in CH-A =Sync tip level in CH-B±5%	⊘RV17/DM-72 (D-8) TRIG : TP4/DM-72 (D-7)

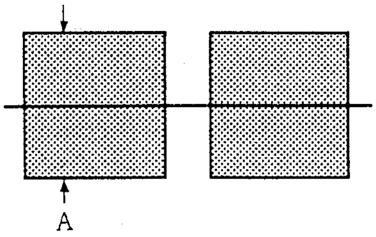
11-7. Y RF OUTPUT LEVEL TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP5/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-72 (F-9)  A=0.30±0.04V	⊘RV5/DM-72 (B-8) TRIG : TP4/DM-72 (D-7)

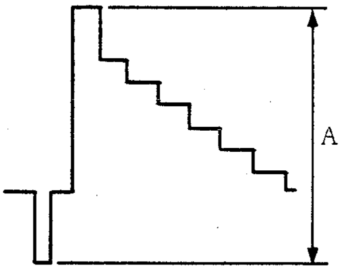
11-8. PB CHROMA RF BALANCE TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP511/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP511/DM-72(B-5)  CH-A level=CH-B level (Difference between CH-A and B =within 5%)	⊘RV4/DM-72(D-8) TRIG : TP4/DM-72(D-7)

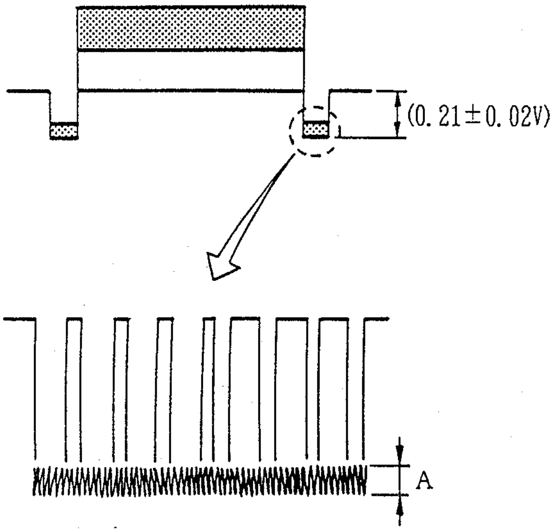
11-9. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the RF level at TP511/DM-72 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP511/DM-72(B-5)  A=0.2±0.01V	⊘RV503/DM-72(B-5) TRIG : TP4/DM-72(D-7)

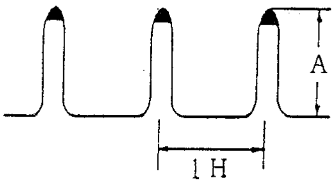
11-10. PB Y OUTPUT LEVEL TENTATIVE ADJUSTMENT

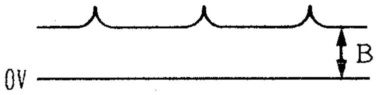
machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP15/DM-72(H-4)  A=0.7±0.05V	SP mode: ⊘RV11/DM-72(H-8) High-band mode: ⊘RV16/DM-72(H-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SB PAL.		

11-11. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.	TP14/DM-72(L-6)  Minimize the A level (A≦80mV)	⊘RV8/DM-72(E-9) TRIG: TP4/DM-72(D-7)

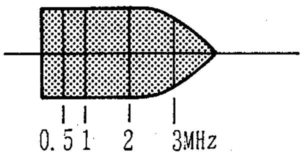
11-12. SP MODE DETECTION ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Desolder the bridge on SL2/DM-72 (E-5).
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.</td><td>TP301/DM-72(E-5)


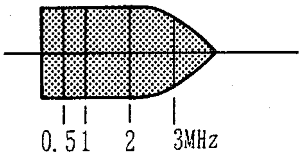
Maximize the A level</td><td>⊘LV301/DM-72(E-5)</td></tr>
<tr><td>• Solder the solder bridge.
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.</td><td>

B=2.0±0.1V</td><td>⊘RV302/DM-72(E-5)</td></tr>
<tr><td>• Play back the color-bar segment of the alignment tape RR5-1SD PAL.</td><td>Confirm that the SP lamp on the front panel lights.</td><td></td></tr>
</table>

11-13. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (SP MODE)

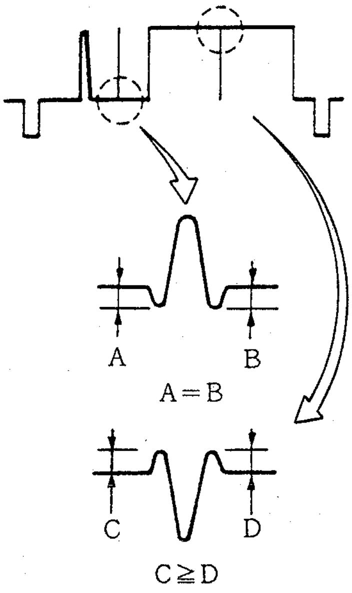
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD PAL.</td><td>TP801/DM-72(F-4)

<table>
<tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr>
<tr><td>100%
(reference)</td><td>(100 ±5%)</td><td>(100 ±5%)</td><td>90 ±5%</td></tr>
</table>
Read the levels at the moire peak.</td><td>⊘CV2/DM-72(L-7)
TRIG : TP4/DM-72(D-7)</td></tr>
</table>

11-14. Y PB FREQUENCY RESPONSE ADJUSTMENT (HIGH-BAND MODE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Play back the normally recorded "Gated sweep signal" on KCA or KCS tape.</td>
<td>TP15/DM-72(H-4)


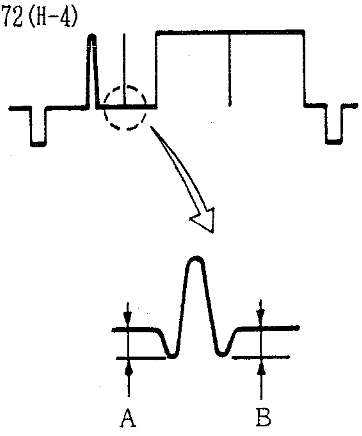
<table>
<tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr>
<tr><td>100%
(reference)</td><td>(100
±5%)</td><td>(100
±5%)</td><td>80
±10%</td></tr>
</table>
Read the levels at the moire peak.</td>
<td>⊘CV1/DM-72(L-7)
TRIG : TP4/DM-72(D-7)</td>
</tr>
</table>

11-15. Y PHASE EQUALIZING TENTATIVE ADJUSTMENT (SP MODE)

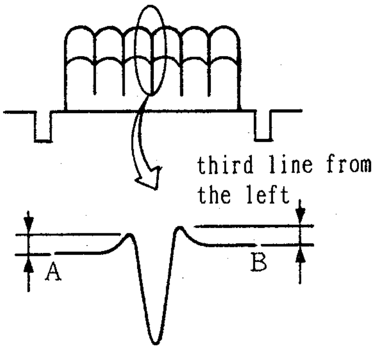
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Play back the pulse and bar segment of the alignment tape RR5-1SD PAL.</td>
<td>TP15/DM-72(H-4)
Spec 1.
Spec 2.

</td>
<td>Spec 1.
⊘LV1/DM-72(K-7)
Spec 2.
⊘RV810/DM-72(B-8)</td>
</tr>
</table>

NOTE : After adjustment by RV810, perform Sec.11-6 Y RF OUTPUT BALANCE ADJUSTMENT, and Sec.11-7 Y RF OUTPUT LEVEL ADJUSTMENT.

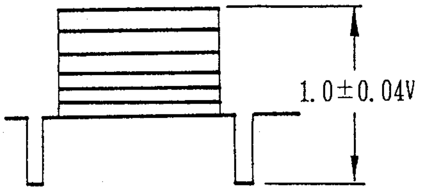
11-16. Y PHASE EQUALIZING ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T signal on alignment tape RR5-2SB PAL.	TP15/DM-72(H-4)  Minimize A, within the limits of specification. B<A≦2B	⊘RV12/DM-72(K-9)

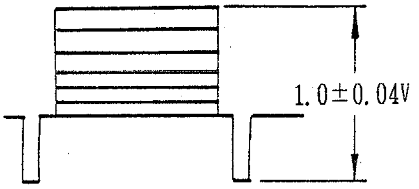
11-17. Y PHASE EQUALIZING PRE-ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T signal on alignment tape RR5-2SC PAL.	TP15/DM-72(H-4)  A=B	⊘RV551/DM-72(K-7)

11-18. DUB Y OUTPUT LEVEL ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP801/DM-72(F-4)  NOTE : When noise appears at TP801/DM-72(F-4), measure the level in the center of noise.	⊘RV11/DM-72(H-8) TRIG : TP4/DM-72(D-7)

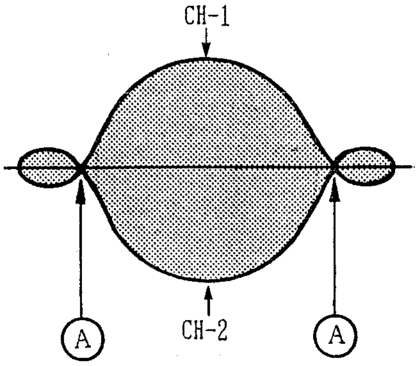
11-19. DUB Y OUTPUT LEVEL ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SB PAL.	TP801/DM-72(F-4)  NOTE : When noise appears at TP801/DM-72(F-4), measure the level in the center of noise.	⊘RV16/DM-72(H-8) TRIG : TP4/DM-72(D-7)

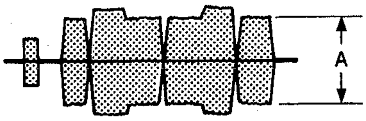
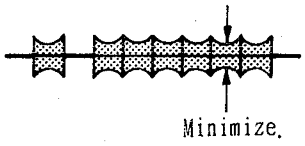
11-20. 4.43MHz OSC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Frequency counter	TP801/MD-60A(D-7) 4.433.619±0.005kHz	⊘CV801/MD-60A(F-7)

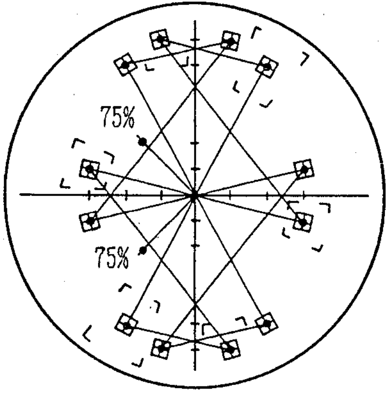
11-21. HORIZONTAL CORRELATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Locked Sweep • EE mode • Oscilloscope CH-2 : INV mode	CH-1/CH-2 : TP407/MD-60A (D-4) GND : E401/MD-60A (E-1) Oscilloscope : CHOP mode  Must be conformed to A point, adjust so that the wavefrom is symmetrical pattern.	⊘RV404/MD-60A (D-4) TRIG : TP9/SV-112C (L-5)

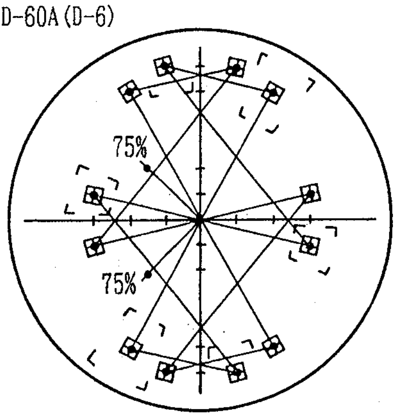
11-22. CHROMA DELAY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP408/MD-60A (D-5) CH-2 : TP410/MD-60A (B-6)  CH-1=CH-2 A≧2.3V (reference)	⊘RV407/MD-60A (C-6) TRIG : TP509/DM-73 (F-8)
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : ADD mode (CH-2 : INVERT)	CH-1 : TP408/MD-60A (D-5) CH-2 : TP410/MD-60A (B-6) 	⊘RV406/MD-60A (C-5) TRIG : TP509/DM-73 (F-8)

11-23. SLICE LEVEL ADJUSTMENT (1)

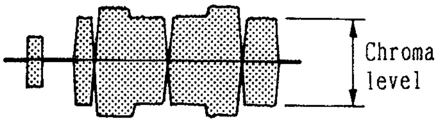
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Using a vectorscope's PHASE control and GAIN control, set the burst level to 75% marked position.	TP411/MD-60A(B-6)  • Set the burst level to 75% • Set each spot to "⊞".	⊘RV408/MD-60A(B-7)

11-24. SLICE LEVEL ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Using a vectorscope's PHASE control and GAIN control, set the burst level to 75% marked position.	TP409/MD-60A(D-6)  • Set the burst level to 75% • Set each spot to "⊞".	⊘RV405/MD-60A(D-7)

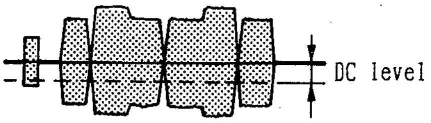
11-25. MIX LEVEL ADJUSTMENT

Step 1.

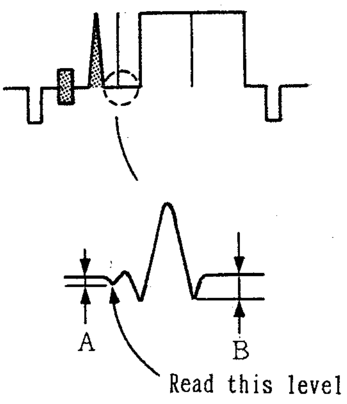
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP407/MD-60A(D-4) CH-2 : TP413/MD-60A(A-7)  CH-1=CH-2	Chroma level adj. Calibrator of Oscilloscope TRIG : TP509/DM-73(F-8)

NOTE : When the center of the CH-1 waveform does not coincide withe that of the CH-2, adjust in Step 2 first off.

Step 2.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Oscilloscope : CHOP mode	CH-1 : TP407/MD-60A(D-4) CH-2 : TP413/MD-60A(A-7)  CH-1=CH-2	DC level adj. ⊘RV409/MD-60A(C-6) TRIG : TP509/DM-73(F-8)

11-26. Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 10T • EE mode	TP1/MD-60A (F-6)  A=B	⊘RV401/MD-60A (E-3)

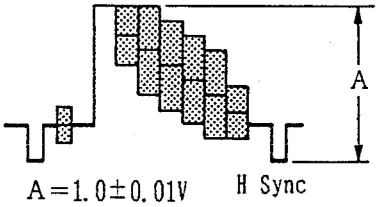
11-27. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KSP cassette tape. • EE mode	TP15/MD-60A (K-3) 5.6±0.05MHz	⊘RV3/MD-60A (H-5)

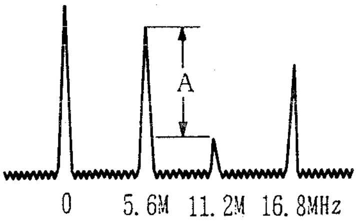
11-28. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KCA or KCS cassette tape. • EE mode	TP15/MD-60A (K-3) 4.8±0.05MHz	⊘RV4/MD-60A (H-5)

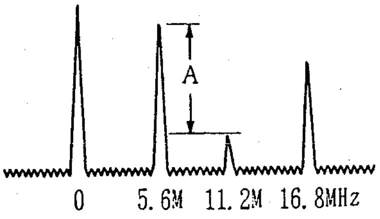
11−29. FM DEVIATION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	VIDEO OUT connector (terminated by 75 ohms)  A=1.0±0.01V	⊘RV1/MD-60A (H-7)

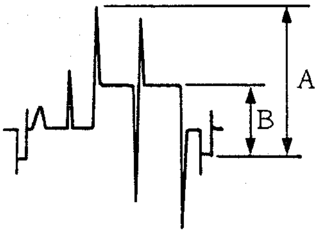
11−30. MODULATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP10/MD-60A (G-5) Spectrum analyzer  Minimize the level at 11.2MHz (A≧45dB).	⊘RV2/MD-60A (H-5)

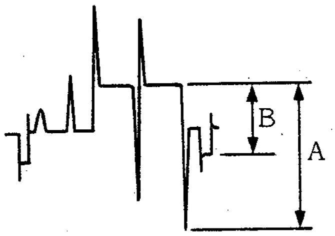
11−31. REC HF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP15/MD-60A (K-3) Spectrum analyzer  Minimize the level at 11.2MHz (A≧42dB).	⊘RV8/MD-60A (J-7)

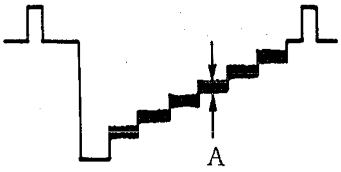
11-32. WHITE CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-60A(G-5) and TP9/MD-60A(G-5) with a shorting clip. • VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • EE mode	TP11/MD-60A(H-5) 	SP mode adj. ⊘RV6/MD-60A(H-6) High-band mode adj. ⊘RV5/MD-60A(H-5)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, A=230±5% (SP mode) $A=220^{+0}_{-5}\%$ (High-band mode) (Read the level at the center of moire.)	TRIG : TP5/MD-60A(F-3)

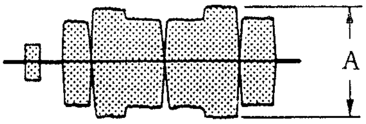
11-33. DARK CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-60A(G-5) and TP9/MD-60A(G-5) with a shorting clip. • VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • EE mode	TP11/MD-60A(H-5) 	SP mode adj. ⊘RV7/MD-60A(J-5) High-band mode adj. ⊘RV13/MD-60A(J-5)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, A=220±5% (SP mode) $A=200^{+0}_{-5}\%$ (High-band mode) (Read the level at the center of moire.)	TRIG : TP5/MD-60A(F-3)

11-34. SUBCARRIER TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect between TP8/MD-60A (G-5) and TP9/MD-60A (G-5) with 1 kohm resistor. • VIDEO IN Connector : Color-bar • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the resistor.	TP11/MD-60A (H-5)  Minimize A. (A≦50mVp-p)	⊘LV1/MD-60A (J-4)

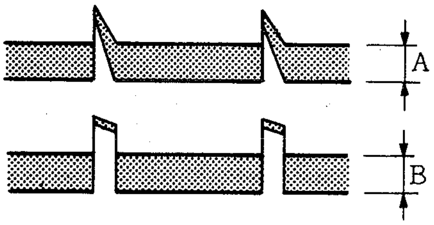
11-35. REC ACC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP301/MD-60A (L-7)  A=0.8±0.05V	⊘RV202/MD-60A (L-5) TRIG : TP509/DM-73 (F-8)

11-36. APC DC ADJUSTMENT

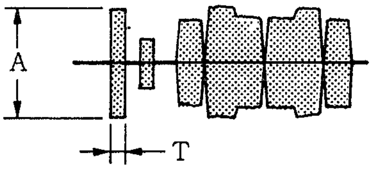
machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • EE mode • DC Voltmeter	TP205/MD-60A (M-6) 8.0±0.1Vdc	⊘RV203/MD-60A (L-5)

11-37. REC APC ADJUSTMENT

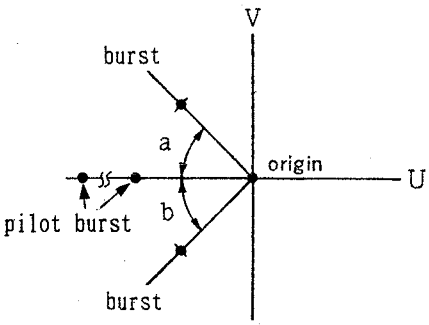
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP205/MD-60A(M-6)  A=B	⊘T201/MD-60A(M-7) TRIG : TP4/DM-72(D-7)

NOTE : After this adjustment is completed, perform the sec. 11-35 REC ACC ADJUSTMENT.

11-38. PILOT BURST ADJUSTMENT

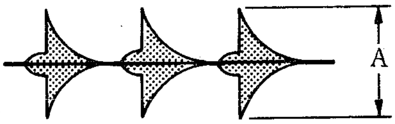
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP302/MD-60A(L-7)  T=3.5±0.1μs (A=0.8±0.1V)	⊘RV301/MD-60A(L-8) :T ⊘RV302/MD-60A(M-7) :A TRIG : TP509/DM-73(F-8)

11-39. PILOT BURST PHASE ADJUSTMENT

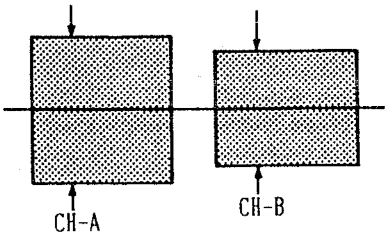
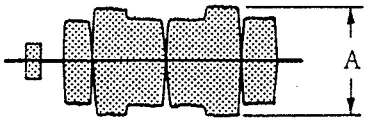
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Vectorscope	TP302/MD-60A(L-7)  a = b =45°	⊘LV301/MD-60A(M-8) TRIG : TP509/DM-73(F-8)

NOTE : After adjustment, perform sec. 11-38. PILOT BURST ADJUSTMENT.

11-40. REF 135° BURST PULSE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP304/MD-60A(K-8)  A=1.0±0.1V	⊘RV303/MD-60A(K-8) TRIG : TP509/DM-73(F-8)

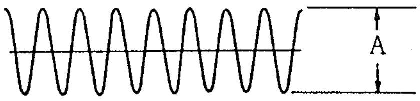
11-41. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	TP502/DM-73(C-4)  CH-A level=CH-B level (Level difference between CH-A and B is within 5%)	⊘RV4/DM-72(D-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	TP502/DM-73(C-2)  A=0.2±0.01V	⊘RV503/DM-72(B-5) TRIG : TP509/DM-73(F-8)
Step 3. • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • TRACKING : Maximize the RF level of TP502/DM-73.	A=0.2±0.05V	

11-42. VCO DC LEVEL ADJUSTMENT

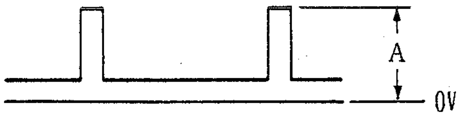
machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • DC Voltmeter	TP514/DM-73 (D-7) 8.15±0.1Vdc	⊘RV505/DM-73 (F-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL. • DC Voltmeter	TP514/DM-73 (D-7) 8.1±0.1Vdc	⊘RV701/DM-73 (F-8)

11-43. 5.3MHz LEVEL ADJUSTMENT

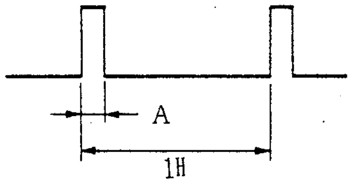
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the A level at LV701 (C-6) and LV702 (B-6) on the DM-73 board.	TP513/DM-73 (B-6)  A=0.61±0.03V	⊘RV517/DM-73 (B-6)

11-44. PB ACC BURST GATE ADJUSTMENT

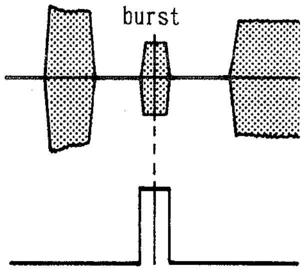
Step1. Burst flag level check

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP509/DM-73 (F-8)  A=5.0±0.2V	

Step2. Burst flag width adjustment

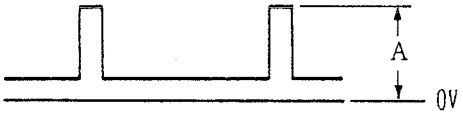
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP509/DM-73(F-8)  A=2.2±0.1μs	⊘RV509/DM-73(E-9)

Step3. Burst flag phase adjustment

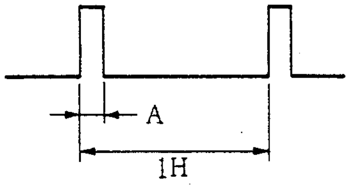
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	CH-1 : TP518/DM-73(E-3) CH-2 : TP509/DM-73(F-8)  Align the center of both waveforms.	⊘RV508/DM-73(E-9) TRIG : CH-2

11-45. PB APC BURST GATE ADJUSTMENT

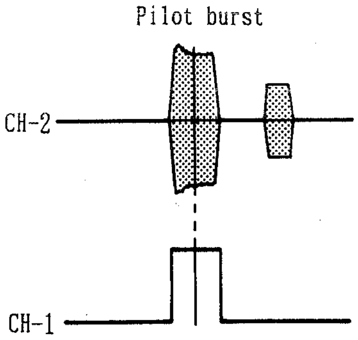
Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP508/DM-73(E-9)  A=3.4±0.1V	⊘RV510/DM-73(D-9)

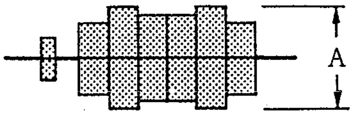
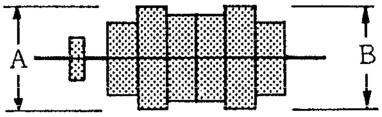
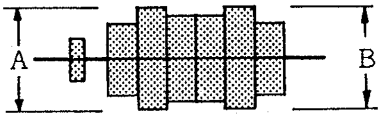
Step2. Burst flag width adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP508/DM-73(E-9)  $A=2.2\pm0.1\mu s$	⊘RV507/DM-73(F-9)

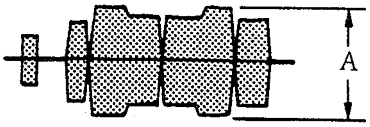
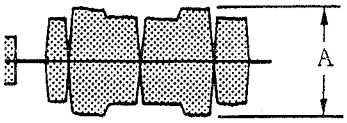
Step3. Burst flag phase adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	CH-1 : TP518/DM-73(E-3) CH-2 : TP508/DM-73(E-9)  Align the center of both waveforms.	⊘RV512/DM-73(E-9) TRIG : CH-2

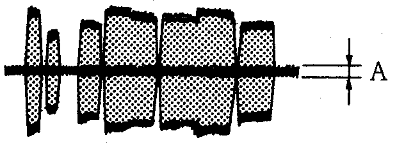
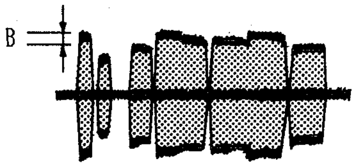
11-46. DG COMPENSATION TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Fully turn RV703/DM-73(F-3) in the clockwise direction from the component side.	TP515/DM-73(D-3)  A=0.6±0.05V (Adjust the red level.)	⊘RV518/DM-73(D-5) TRIG : TP509/DM-73(F-8)
	TP515/DM-73(D-3)  A=B	⊘RV703/DM-73(F-3) TRIG : TP509/DM-73(F-8)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL. • Fully turn RV702/DM-73(E-2) in the clockwise direction from the component side.	TP515/DM-73(D-3)  A=B	⊘RV702/DM-73(E-2) TRIG : TP509/DM-73(F-8)

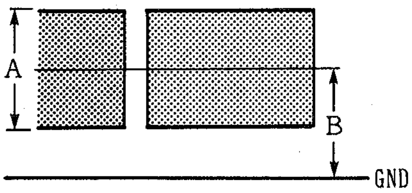
11-47. PB ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP515/DM-73 (D-3)  A=0.6±0.05V	⊘RV518/DM-73 (D-5) TRIG : TP509/DM-73 (F-8)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	Check : A=0.7±0.05V	
• VIDEO IN connector : color-bar • EE mode	TP515/DM-73 (D-3)  A=0.6±0.05V	⊘T502/DM-73 (F-5) TRIG : TP509/DM-73 (F-8)

11-48. CONVERTER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Wait for more than five minutes after power is turned ON.	TP518/DM-73 (E-3)  A≦30mV Minimize the carrier leak.	⊘RV519/DM-73 (D-3) TRIG : TP509/DM-73 (F-8)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL. • Wait for more than five minutes after power is turned ON.	TP518/DM-73 (E-3)  minimize B	⊘CV701/DM-73 (F-4) TRIG : TP509/DM-73 (F-8)

11−49. DUB CHROMA LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP504/DM-73 (C-1)  A=1.0±0.04V (B=6.0±1V)	⊘RV504/DM-73 (D-2) TRIG : TP4/DM-72 (D-7)
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	Check : A=1.0±0.1V B=9.0±0.5V	TRIG : TP4/DM-72 (D-7)

11−50. TBC MODE APC ADJUSTMENT

Step1.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • DC voltmeter	TP514/DM-73 (D-7) 8.15±0.1Vdc (Check that the color-bar signal is played back at the color mode on the color monitor in the normal FWD mode.)	⊘RV505/DM-73 (F-8)

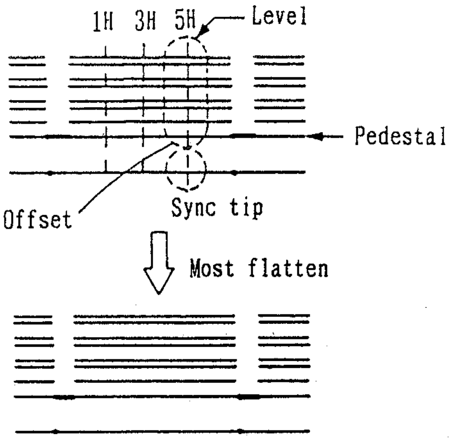
Step2.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Put the unit into the SEARCH mode and change the mode from FWD SEARCH X1/30 to STILL • DC voltmeter	TP514/DM-73 (D-7) 8.6±0.05Vdc	⊘RV807/DM-73 (E-7)

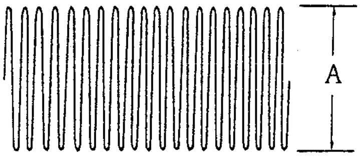
Step3.

machine conditions for adjustment	specifications	adjustments
• MODE SELECT sw : TBC • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Put the unit into the SEARCH mode and change the mode from FWD SEARCH X1/30 to STILL • DC voltmeter	TP514/DM-73(D-7) 7.55±0.05Vdc	⊘RV808/DM-73(E-8)

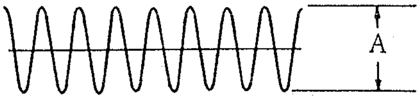
11-51. DOC OFFSET/LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the pseudo color-bar segment of the alignment tape RR5-1SD PAL.	TP801/DM-72(F-4)  1H 3H 5H Level Pedestal Offset Sync tip Most flatten	Offset adj. ⊘RV13/DM-72(J-5) Level adj. ⊘RV201/DM-72(L-5) TRIG : TP4/DM-72(D-7)

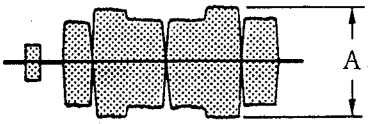
11-52. ROTARY ERASE CURRENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KCA or KCS type cassette tape into the unit. • VIDEO INSERT mode	TP102/RP-40C (A-1) : CH-A TP103/RP-40C (A-1) : CH-B GND : E101/RP-40C (A-1)  A=1.0±0.02V	CH-A : ⊘RV102/RP-40C (A-2) CH-B : ⊘RV101/RP-40C (A-2)

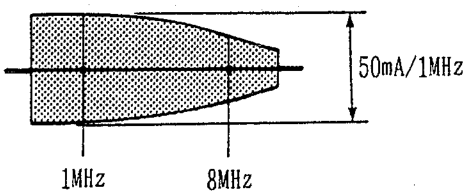
11-53. REC 5.35MHz LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP206/MD-60A (L-4)  A=0.6±0.1V	⊘RV517/DM-73 (B-6)

11-54. REC CHROMA RF LEVEL ADJUSTMENT

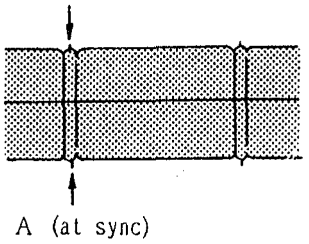
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP201/MD-60A (N-2)  A=0.45±0.025V	⊘RV201/MD-60A (N-6) TRIG : TP509/DM-73 (F-8)

11-55. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>
• Desolder the bridge between SL1/RP-40C(D-2) and SL2/RP-40C(D-2).
• Short between TP3(C-2) and E2(C-2) on the RP-40C board with shoting clip.
• Connect between TP5(D-1) and TP6(D-1):and TP8(D-1) and TP9(D-1) on the RP-40C board with shorting clips.
• Supply an RF sweep signal to TP4/RP-40C.
• Insert a KSP cassette tape.
• VIDEO IN connector : Color-bar
• REC mode
• After the adjustment is completed, remove the shorting clips and resolder the solder bridges.
</td>
<td>
between TP5/RP-40C(D-1)and TP6/RP-40C(D-1) : CH-A
between TP8/RP-40C(D-1)and TP9/RP-40C(D-1) : CH-B


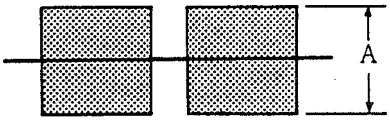
<table>
<tr><th>1MHz</th><th>8MHz</th></tr>
<tr><td>100%
(reference)</td><td>90
±5%</td></tr>
</table>
• Use a current probe for observing the current.
</td>
<td>
CH-A :
⊘RV3/RP-40C(C-2)
CH-B :
⊘RV5/RP-40C(C-1)
TRIG : VD/SWEEP GEN
</td>
</tr>
</table>

11-56. Y REC CURRENT ADJUSTMENT

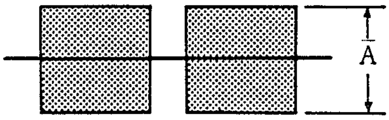
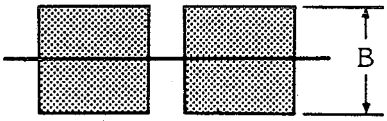
machine conditions for adjustment	specifications	adjustments
- Desolder the bridge on SL1/RP-40C (D-2). - Connect between TP5/RP-40C and TP6/RP-40C with a shorting clip. - Short between TP1/RP-40C (B-2) and GND with a shorting clip. - VIDEO IN connector : Color-bar SP mode adjustment - Insert a KSP cassette tape. - REC mode High-band mode adjustment - Insert a KCA or KCS cassette tape. - REC mode - After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP-40C (D-1) and TP6/RP-40C (D-1)  SP mode adjustment : $A=55\pm5$mA High-band mode adjustment : $A=67^{+8}_{-5}$mA - Use a current probe for observing the current.	SP mode adj. ⊘RV8/RP-40C (C-2) Conventional mode adj. ⊘RV7/RP-40C (B-2) TRIG : TP1/MD-60A (F-6)

11-57. CHROMA REC CURRENT ADJUSTMENT

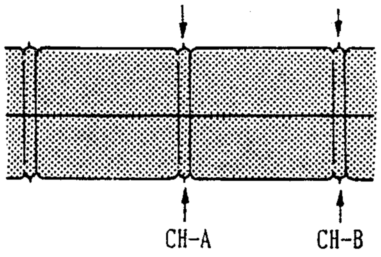
Step1.

machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40C (D-2). • Connect between TP5/RP-40C and TP6/RP-40C with a shorting clip. • Short between TP3/RP-40C(C-2) and GND with shorting clip. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP40C(D-1) and TP6/RP-40C(D-1)  A=13±5mA • Use a current probe for observing the current.	⊘RV1/RP-40C(B-2) TRIG : TP4/DM-72(D-7)

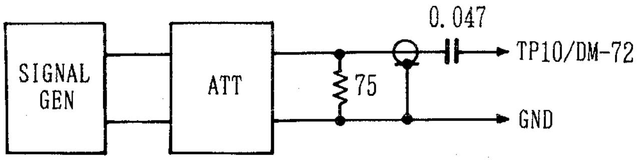
Step2.

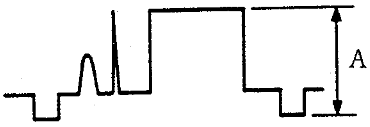
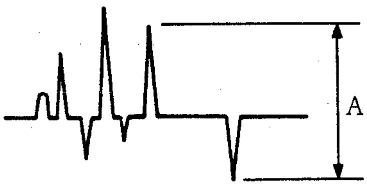
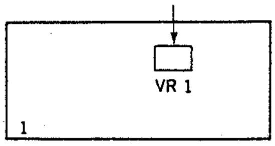
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Maximize the level at TP502/DM-73 using a TRACKING control.	TP502/DM-73(C-4)  A≒200mV	TRIG : TP4/DM-72(D-7)
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and put the unit into the REC/PB mode.	TP512/DM-72(C-2)  B=A±20% If the specification is not satisfied, readjust Step 1.	TRIG : TP4/DM-72(D-7)

11-58. O. A Y RF OUTPUT LEVEL ADJUSTMENT

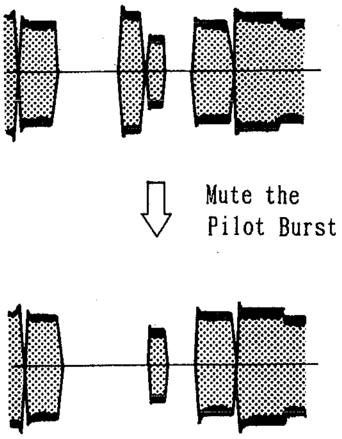
machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar SP mode adj. • Insert a KSP cassette tape. • Play back the self recorded portion. Conventional mode adj. • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	TP5/DM-72(F-9)  Level adjustment : 0.35±0.05V Balance check : CH-A=CH-B±15%	Level adj. ⊘RV5/DM-72(B-8) TRIG : TP4/DM-72(D-7)

11-59. NOISE CANCELLER ADJUSTMENT

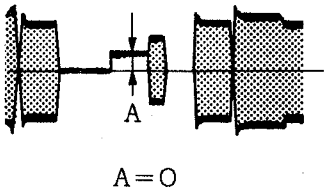


machine conditions for adjustment	specifications	adjustments
• Desolder the bridge at SL1/DM-72 (G-4). • Connect a signal generator. • Output an MOD 20T pulse signal from the signal generator. • After the adjustment is completed, resolder the solder bridge.	TP10/DM-72(G-3)  A=100±5mV	⊘Attenuator
	TP11/DM-72(H-4)  A=360±10mV	⊘VR1(IC12)/DM-72(G-4) 

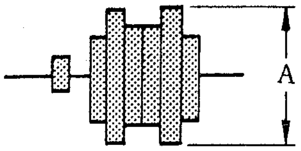
11-60. PILOT BURST GATE PULSE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP523/DM-73 (H-2)  	⊘RV506/DM-73 (F-9) TRIG : TP509/DM-73 (F-8)

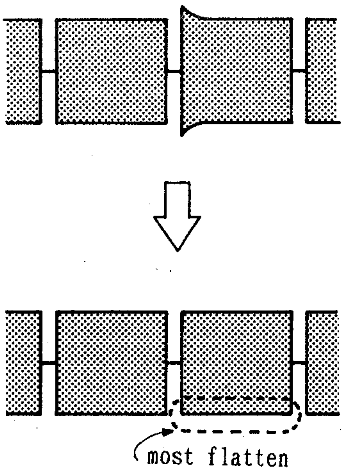
11-61. PILOT BURST DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP523/DM-73 (H-2)  	⊘RV705/DM-73 (G-3) TRIG : TP509/DM-73 (F-1)

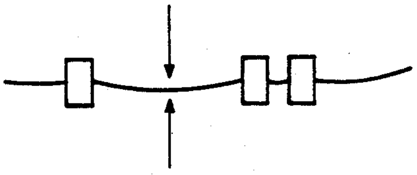
11-62. HIGH SPEED ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP525/DM-73 (H-4)  A=0.6±0.02Vp-p	⊘RV522/DM-73 (H-2) TRIG : TP509/DM-73 (F-8)

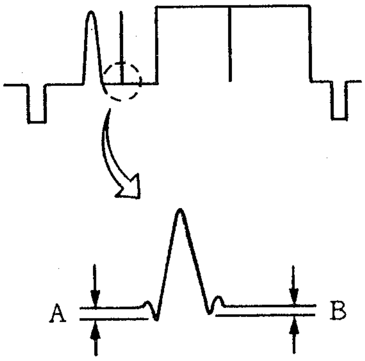
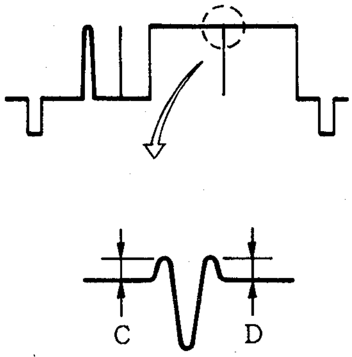
11-63. HIGH SPEED ACC GAIN ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP525/DM-73 (H-4)  	⊘RV521/DM-73 (G-1) TRIG : TP4/DM-72 (D-7)

11-64. CHROMA NOISE CANCELLER ADJUSTMENT

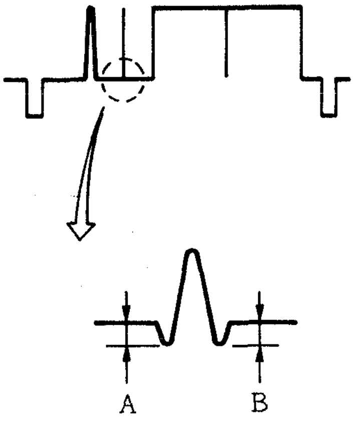
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD PAL.	TP524/DM-73 (H-4)  Minimize the amplitude.	⊘RV523/DM-73 (H-4) TRIG : TP509/DM-73 (F-8)

11-65. Y PHASE EQUALIZING ADJUSTMENT (SP MODE)

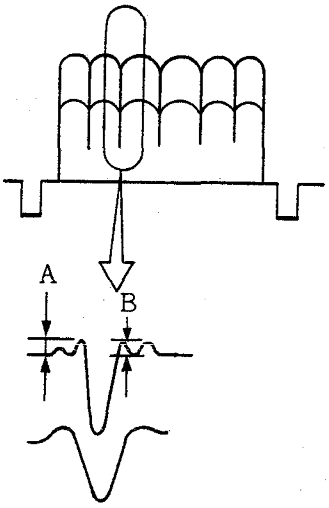
machine conditions for adjustment	specifications	adjustments
- Short between TP518/DM-73(E-3) and GND with shorting clip. - Play back the MOD 10T segment of the alignment tape RR5-1SD PAL.	Step 1. VIDEO OUT connector (terminated by 75 ohms.)  A≦B	⊘LV1/DM-72(K-7) TRIG : TP509/DM-73(F-8)
- After the adjustment is completed, remove the shorting clip.	Step 2. If the specification is not satisfied in Step 1, adjust Step 2.  C=D	⊘RV810/DM-73(B-8)

NOTE : After adjustment, perform sec. 11-58. 0. A Y RF OUTPUT LEVEL ADJUSTMENT.

11-66. Y PHASE EQUALIZING ADJUSTMENT (HIGH-BAND MODE)

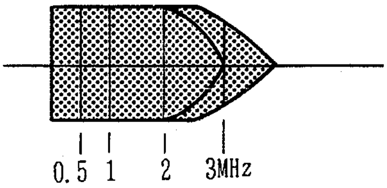
machine conditions for adjustment	specifications	adjustments
• Short between TP518/DM-73(E-3) and GND with shorting clip. • Play back the MOD 20T segment of the alignment tape RR5-2SB PAL. • After the adjustment is completed, remove the shorting clip.	VIDEO OUT connector (terminated by 75 ohms.)  Minimize A, within the limits of specification. $B < A \leqq 2B$	⊘RV12/DM-72(J-9)

11-67. Y PHASE EQUALIZING ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Short between TP518/DM-73(E-3) and GND with shorting clip. • Play back the MOD 20T segment of the alignment tape RR5-2SC PAL. • After the adjustment is completed, remove the shorting clip.	VIDEO OUT connector (terminated by 75 ohms.)  $A = B$	⊘RV551/DM-72(K-7)

11-68. OA Y FREQUENCY RESPONSE CHECK (SP MODE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>
• Short between TP502/DM-73 (C-4) and GND with a shorting clip.
• VIDEO IN connector : Gated sweep (Burst off)
• Insert the KSP Cassette tape.
• Play back the self-recorded portion.
• After the adjustment is completed, remove the shorting clip.
</td><td>
VIDEO OUT connector (terminated by 75 ohms.)

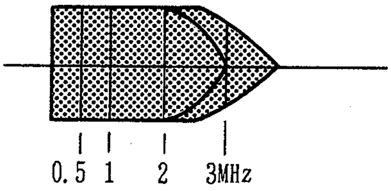


<table>
<tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr>
<tr><td>100%
(REF)</td><td>100
±5%</td><td>100
±5%</td><td>86
±5%</td></tr>
</table>

Read the level at the center of moire.
</td><td></td></tr>
</table>

11-69. OA Y FREQUENCY RESPONSE CHECK (HIGH-BAND MODE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>
• Short between TP502/DM-73 (C-4) and GND with a shorting Clip.
• Short between TP2/RP-40C (B-1) and GND with a shorting clip.
• VIDEO IN connector : Gated sweep (Burst on)
• Insert the KCA-cassette tape.
• Play back the self-recorded portion.
• After the adjustment is completed, remove the shorting clips.
</td><td>
VIDEO OUT connector (terminated by 75 ohms.)



<table>
<tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr>
<tr><td>100%
(REF)</td><td>100
±5%</td><td>100
$^{+5}_{-12}$%</td><td>80
±10%</td></tr>
</table>

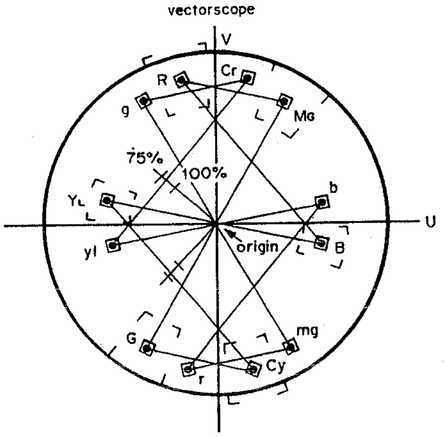
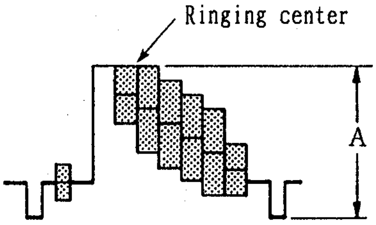
Read the level at the center of moire.
</td><td></td></tr>
</table>

11-70. SP/HIGH-BAND DC LEVEL DIFFERENCE ADJUSTMENT

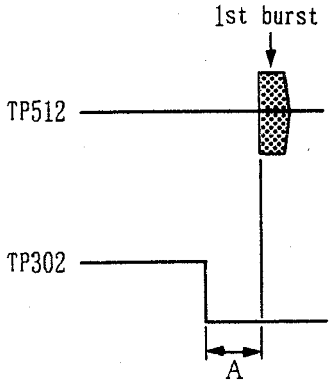
machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • Record DC level "A" at TP8/DM-72 (G-9). • Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Read the DC level "B" at TP8/DM-72.	TP8/DM-72 (G-9) B = A (adjust B level)	⊘RV9/DM-72 (G-7)
• Play back the color-bar segment of the alignment tape RR5-1SD PAL. • Record DC level "C" at TP13/DM-72 (H-6). • Play back the color-bar segment of the alignment tape RR5-2SB PAL. • Read the DC level "D" at TP13/DM-72.	TP13/DM-72 (H-6) D = C (adjust D level)	⊘RV10/DM-72 (H-9)

11-71. Y/C MIXING ADJUSTMENT

Before this adjustment, perform the sec. 11-18. DUB Y OUTPUT LEVEL ADJUSTMENT(SP MODE) and the sec. 11-19. DUB Y OUTPUT LEVEL ADJUSTMENT (HIGH-BAND MODE.)

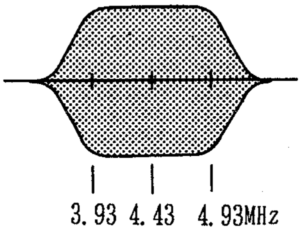
machine conditions for adjustment	specifications	adjustments
Step 1. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • Playback the self recorded portion.	VIDEO OUT connector(terminated by 75 ohms)  vectorscope V Cr R g Mg 75% 100% b YL U yl origin B G mg r Cy RED luminescent spots should be located in the center of mark ⊞.	⊘RV401/DM-72(J-3)
	VIDEO OUT connector(terminated by 75 ohms)  Ringing center A A=1.0±0.05V	⊘RV402/DM-72(J-4)
Step 2. • Play back the color-bar segment of the alignment tape RR5-2SC PAL.	A=1.0±0.05V	

11-72. TIME CODE MUTE PULSE WIDTH ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the time code segment of the alignment tape RR5-1SD PAL.</td><td>CH-1 : TP512/DM-72 (C-2)
CH-2 : TP302/DM-72 (B-4)


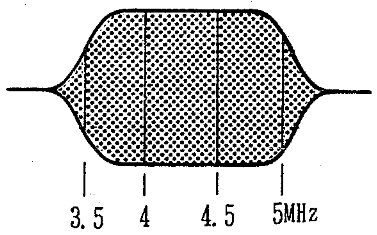
A = 30±10 μsec</td><td>⊘RV301/DM-72 (B-2)
TRIG : CH-2</td></tr>
</table>

11-73. PB CHROMA FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the gated sweep (color) segment of the alignment tape RR5-1SD PAL.</td><td>TP525/DM-73 (H-4)

<table>
<tr><th>3.43MHz</th><th>3.93MHz</th><th>4.43MHz</th><th>4.93MHz</th></tr>
<tr><td>50
±10%</td><td>98
±2%</td><td>100%
(REF)</td><td>78
±5%</td></tr>
</table></td><td>⊘RV502/DM-72 (B-4)</td></tr>
</table>

11-74. OA CHROMA FREQUENCY RESPONSE CHECK

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>
- VIDEO IN connector : Gated sweep (Burst on)
- Insert the KSP cassette tape.
- Play back the self-recorded portion.
</td><td>
TP525/DM-73(H-4)



<table>
<tr><th>3.5MHz</th><th>4MHz</th><th>4.5MHz</th><th>5MHz</th></tr>
<tr><td>70
±10%</td><td>100
±2%</td><td>100%
(REF)</td><td>80
±8%</td></tr>
</table>

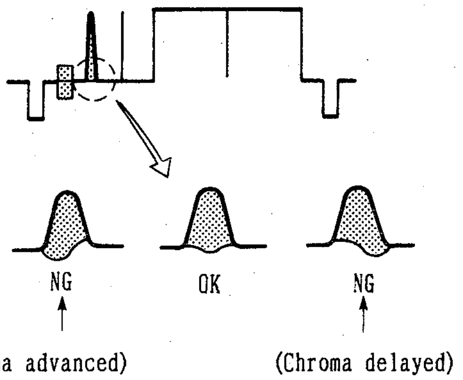
Read the level at the center of moire.

NOTE : When the level does not meet the specification, perform finetuning at RV502/DM-73(B-4).
</td><td></td></tr>
</table>

NOTE : After this finetuning is completed, perform the sec. 11-73. PB CHROMA FREQUENCY RESPONSE ADJUSTMENT.

11-75. PB Y/C DELAY ADJUSTMENT (SP MODE)

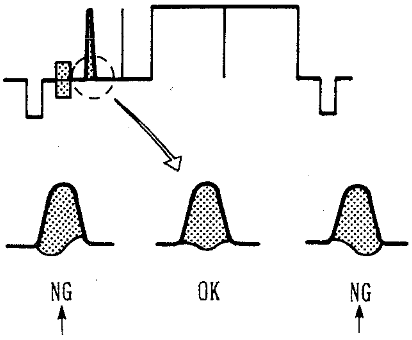
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>
- Play back the pulse & bar segment of the alignment tape RR5-1SD PAL.
</td><td>
VIDEO OUT connector(terminated by 75 ohms.)



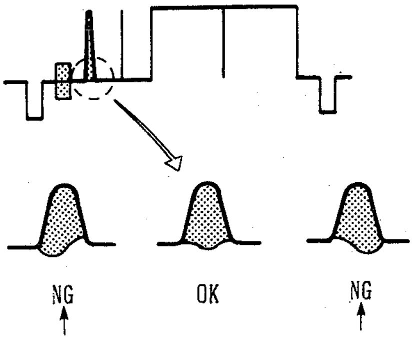
</td><td>
⊘RV504/DM-72(D-2)

When the adjustment is not possible with RV504, adjust using DL501/DM-72(C-3) (at SP side) (When the chroma signal is advanced, adjust the tap to the higher number.)
</td></tr>
</table>

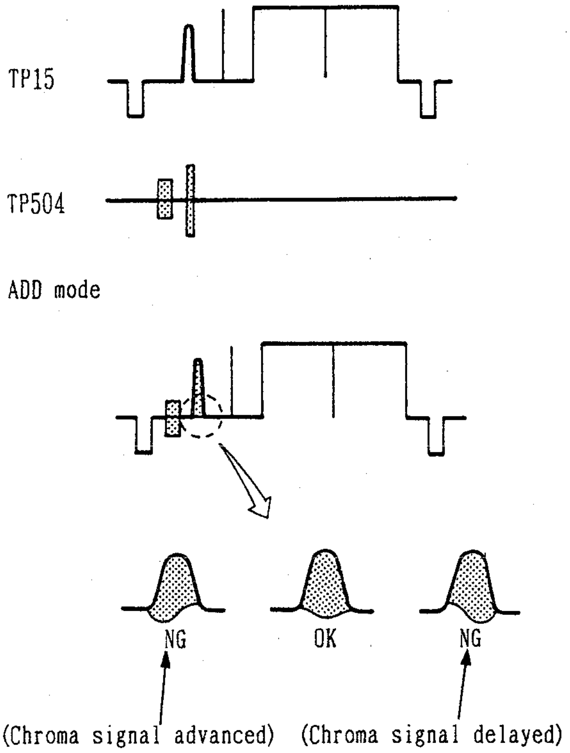
11-76. PB Y/C DELAY ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T pulse segment of the alignment tape RR5-2SB PAL.	VIDEO OUT connector (terminated by 75 ohms.)  NG OK NG (Chroma advanced) (Chroma delayed)	⊘RV505/DM-72(B-2) When the adjustment is not possible with RV505, adjust using DL501/DM-72(C-3) (at conventional side) (When the chroma signal is advanced, adjust the tap to the higher number.)

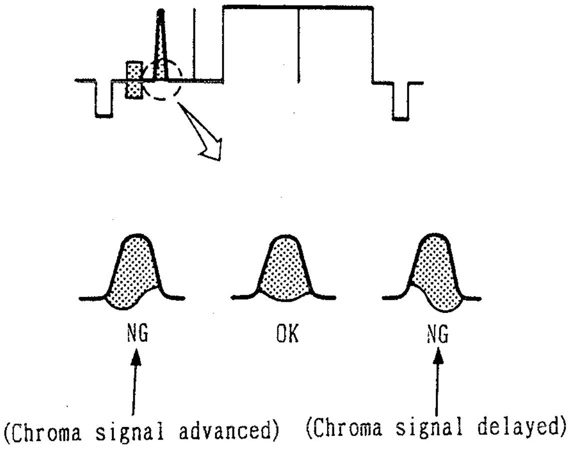
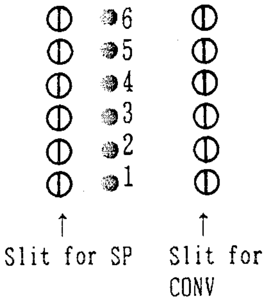
11-77. PB Y/C DELAY ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T pulse segment of the alignment tape RR5-2SC PAL.	VIDEO OUT connector (terminated by 75 ohms.)  NG OK NG (Chroma advanced) (Chroma delayed)	⊘CV702/DM-72(D-4)

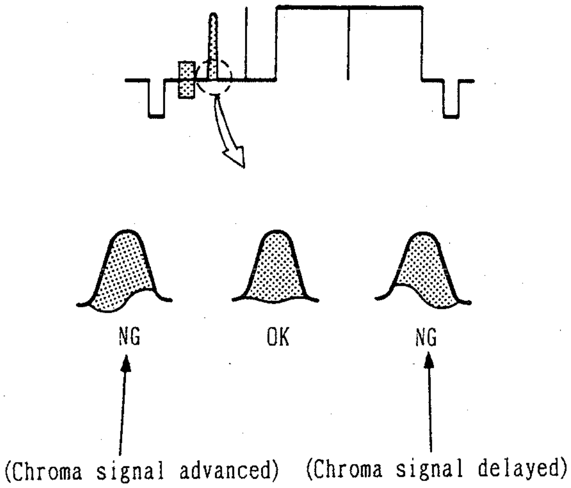
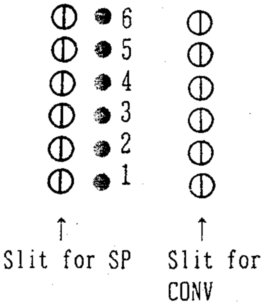
11-78. Y/C DELAY DUB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar segment (color) of the alignment tape RR5-1SD PAL. • Oscilloscope : ADD mode.	CH-1 : TP15/DM-72 (H-4) CH-2 : TP504/DM-73 (C-1)  TP15 TP504 ADD mode NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘RV704/DM-73 (C-2) TRIG : TP509/DM-73 (F-8)

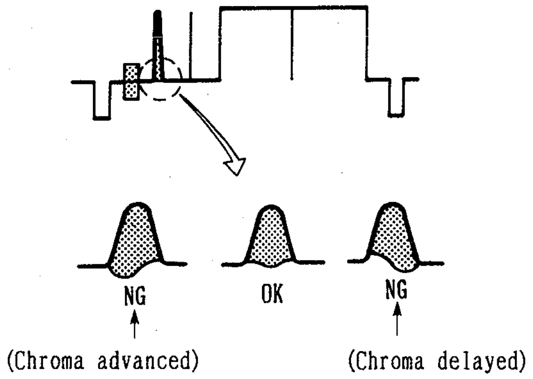
11-79. Y/C DELAY REC ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 10T • Insert a KSP cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘DL201/MD-60A (N-7) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side)  6 5 4 3 2 1 Slit for SP Slit for CONV TRIG : TP509/DM-73 (F-8)

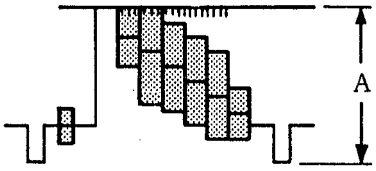
11-80. Y/C DELAY REC ADJUSTMENT (HIGH-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 10T • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘DL201/MD-60A (N-7) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side)  6 5 4 3 2 1 Slit for SP Slit for CONV TRIG : TP509/DM-73 (F-8)

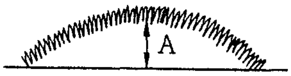
11-81. EE MODE Y/C DELAY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 10T pulse • Insert a KSP cassette tape. • EE mode	VIDEO OUT connector (terminated by 75 ohms.) 	⊘RV506/DM-72 (C-5)

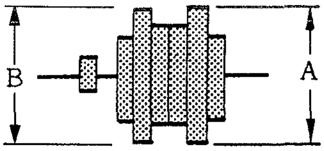
11-82. PB CHARACTER MIX ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Indicate the ITEM No. 104, TITLE (LARGE) in the DIAL MENU operation on the monitor (Refer to Section 2-11). • Select the ■ in the character menu area and set it one line in the title setup area. • Superimpose the title on the monitor.	VIDEO MONITOR OUT connector (terminated by 75 ohms)  A : Adjust the character signal portion to the white level.	⊘RV403/DM-72 (G-2)

11-83. DG COMPENSATION ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 5 STEP • Adjust the vectorscope's GAIN control so that luminescent spots are on the circumference. • Insert a KSP cassette tape and play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms) Vectorscope (DG mode)  Minimize the A DG≦3%	⊘RV703/DM-73 (F-3)

11-84. DG COMPENSATION ADJUSTMENT (LOW-BAND MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-2SC PAL.	VIDEO OUT connector (terminated by 75 ohms)  A=B	⊘RV702/DM-73 (E-2)

SECTION 12

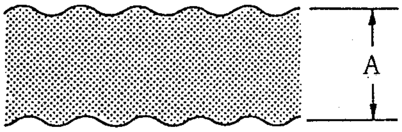
TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

- Oscilloscope
- Square Wave Oscillator
- Cassette Tape : KSP-60
- Alignment Tape : RR5-1SD PAL (Part No. 8-960-036-80)-SP tape-

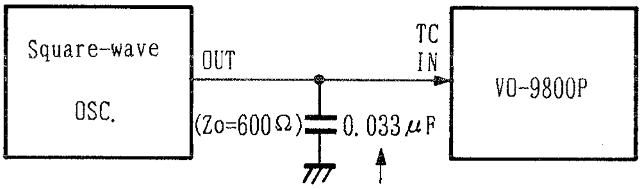
TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	———	OFF	———
3	Gated sweep (B/W)	1kHz, 0dB		———
3	Gated sweep (color)	10kHz, -10dB		———
3	Pulse & Bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		———
		40Hz, -20dB		———
		7kHz, -20dB		———
		10kHz, -20dB		———
		15kHz, -20dB		———
3	Monoscope (color)	1kHz, -20dB	ON	———
		15kHz, -20dB		———
3	Pseudo color bars	———	OFF	Time code

12-1. TC PB LEVEL ADJUSTMENT

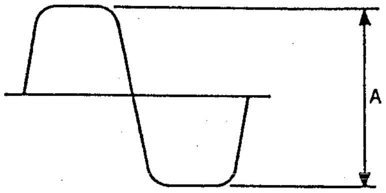
machine conditions for adjustment	specifications	adjustments
• Play back the time code signal on alignment tape RR5-1SD PAL.	TP405/NR-31A (C-6) GND : E400/NR-31A (A-6)  A=1.4±0.1V	⊘RV401/NR-31A (C-6) TRIG : TP4/SV-112C (L-6)

12-2. TC REC LEVEL ADJUSTMENT

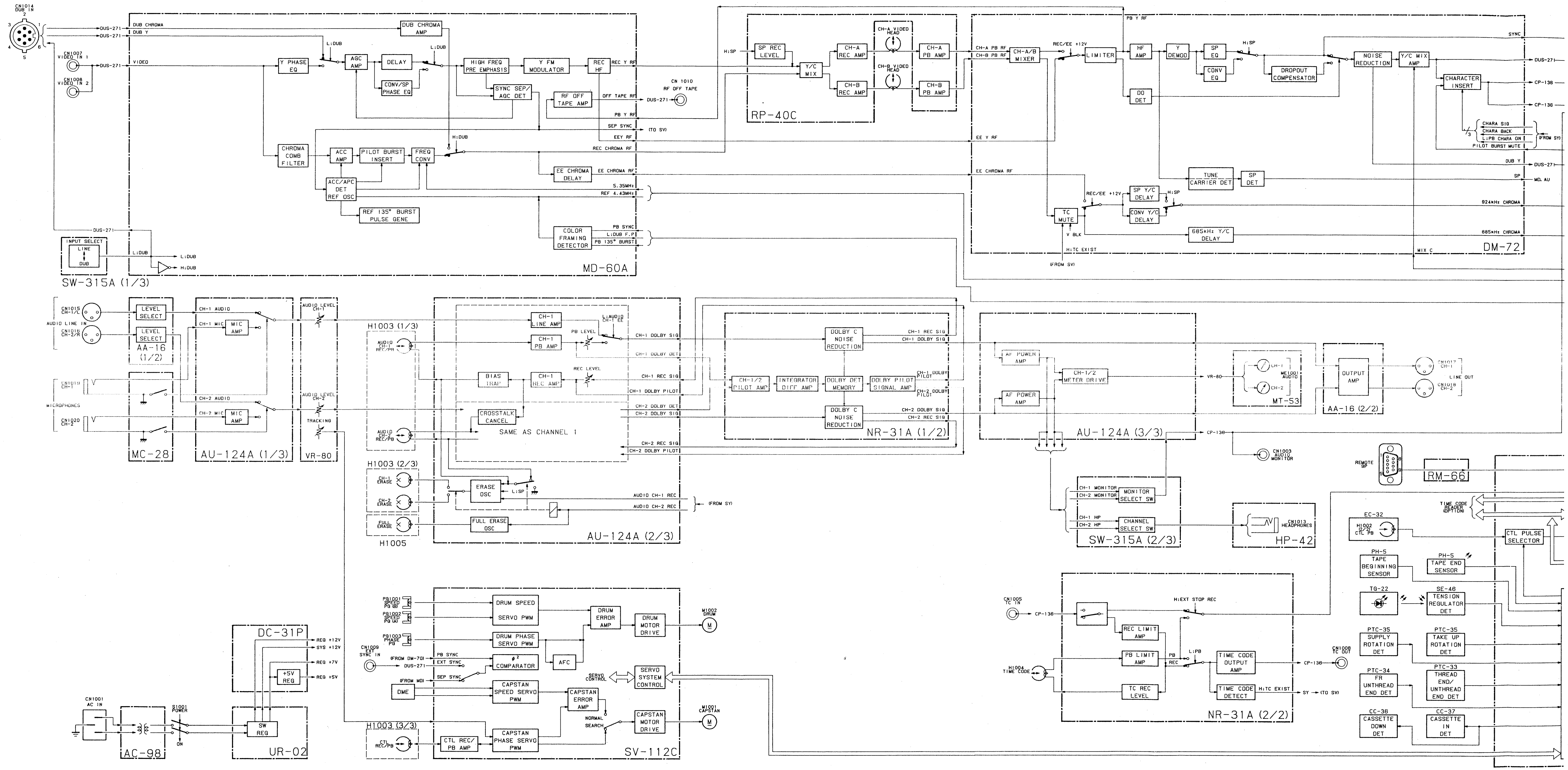
【CONNECTION】

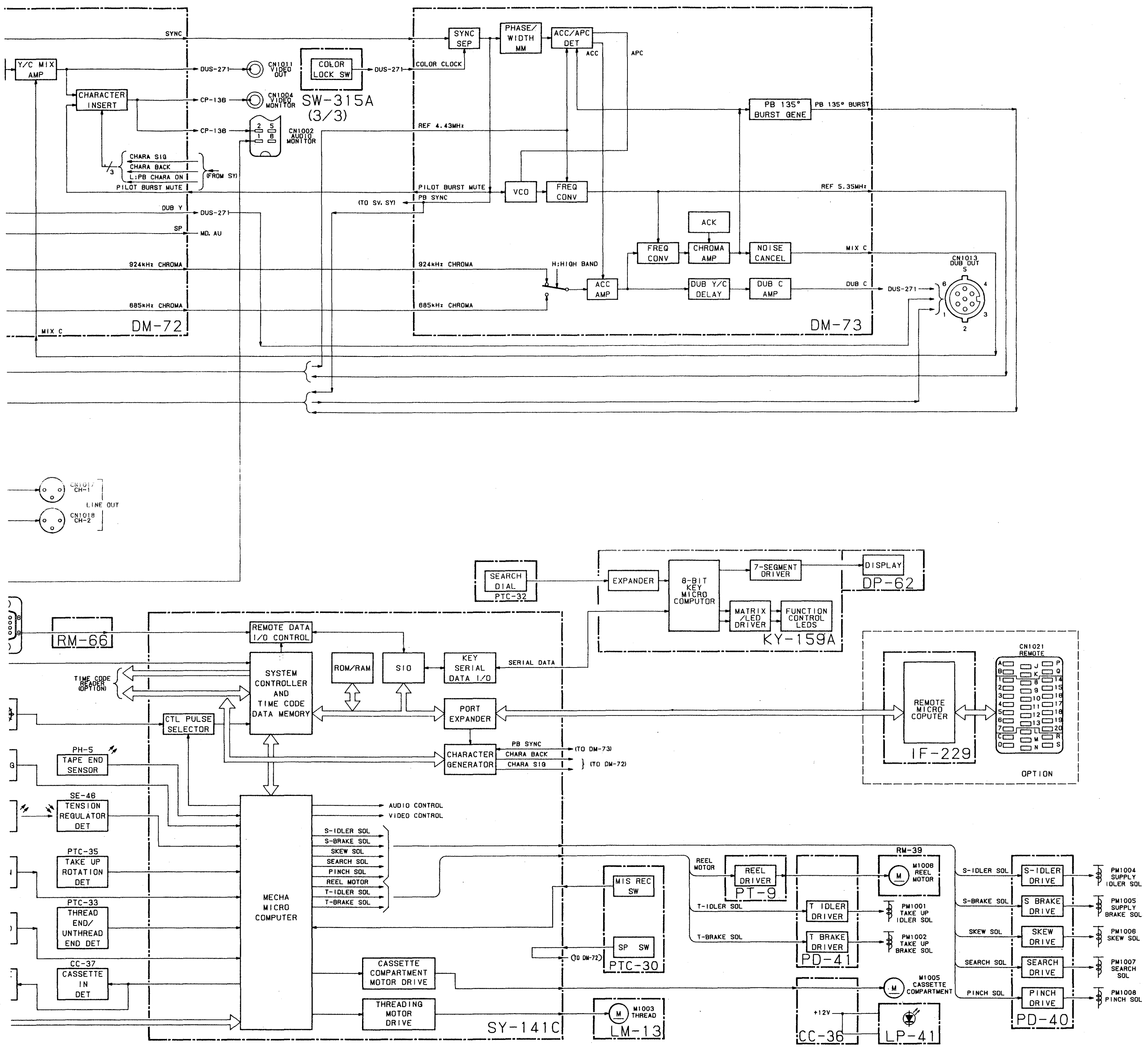


(When output impedance of the oscillator is 600Ω.)

machine conditions for adjustment	specifications	adjustments
• TIME CODE IN : 1.2kHz, 1Vp-p, square wave (EBU formatted) • VIDEO IN : color-bar • Insert the KSP-60 tape, and play back the recorded segment.	TP405/NR-31A (C-6)  A=1.4±0.1V	⊘RV402/NR-31A (L-6) REC mode→adj PB mode→check

SECTION 13
BLOCK DIAGRAM

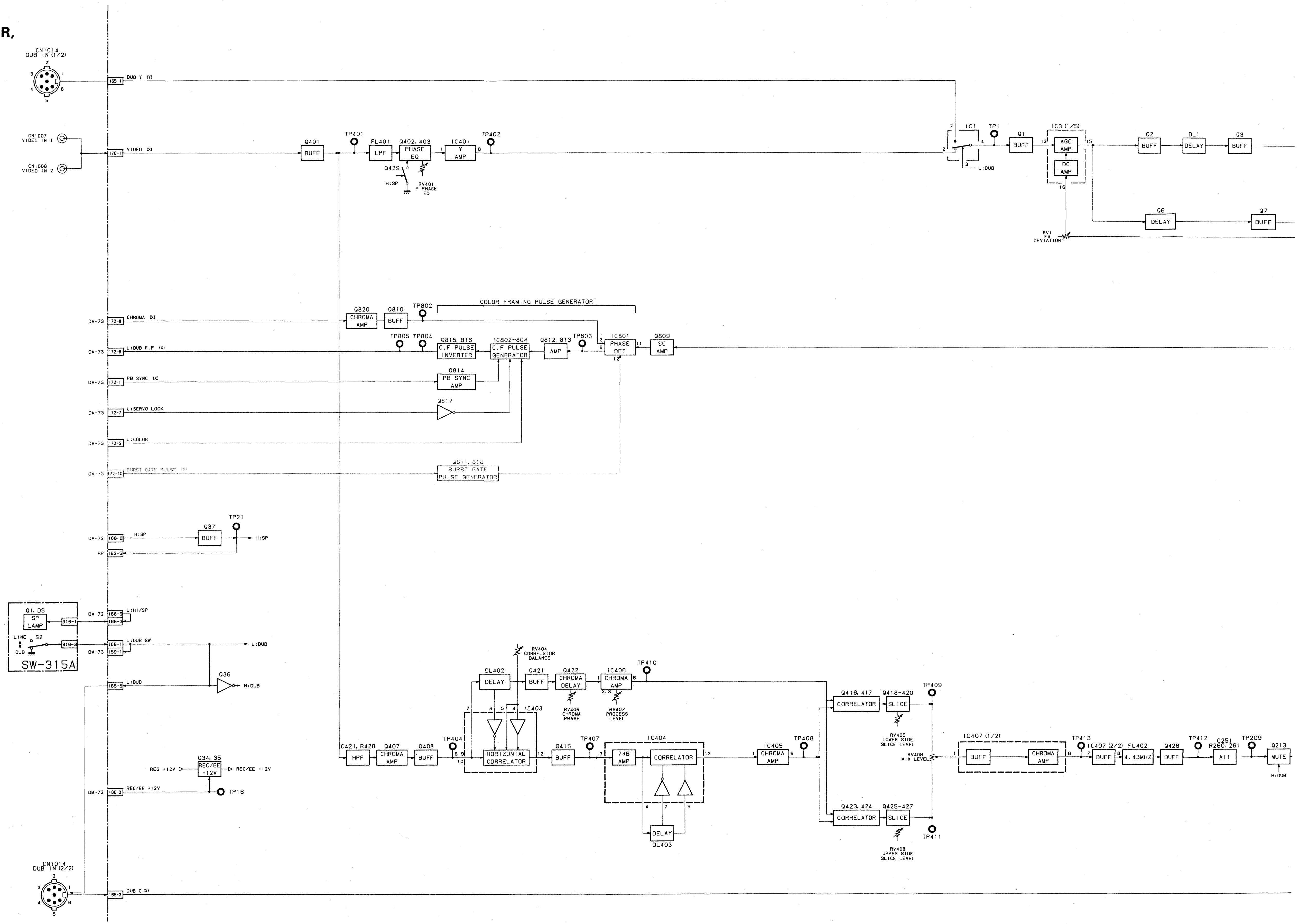

CN1014 DUB IN
CN1007 VIDEO IN 1
CN1008 VIDEO IN 2
DUS-271
DUB CHROMA
DUB Y
VIDEO
DUB CHROMA AMP
Y PHASE EQ
AGC AMP
DELAY
CONV/SP PHASE EQ
HIGH FREQ PRE EMPHASIS
Y FM MODULATOR
REC HF
SYNC SEP/ AGC DET
RF OFF TAPE AMP
CN 1010 RF OFF TAPE
CHROMA COMB FILTER
ACC AMP
PILOT BURST INSERT
FREQ CONV
ACC/APC DET REF OSC
REF 135° BURST PULSE GENE
EE CHROMA DELAY
COLOR FRAMING DETECTOR
INPUT SELECT LINE DUB
SW-315A (1/3)
MD-60A
SP REC LEVEL
Y/C MIX
CH-A REC AMP
CH-B REC AMP
CH-A VIDEO HEAD
CH-B VIDEO HEAD
CH-A PB AMP
CH-B PB AMP
RP-40C
CH-A/B MIXER
LIMITER
HF AMP
Y DEMOD
SP EQ
CONV EQ
DO DET
DROPOUT COMPENSATOR
NOISE REDUCTION
Y/C MIX AMP
CHARACTER INSERT
TUNE CARRIER DET
SP DET
SP Y/C DELAY
CONV Y/C DELAY
TC MUTE
685kHz Y/C DELAY
DM-72
CN1015 CH-1/L
CN1016 CH-2/R
AUDIO LINE IN
LEVEL SELECT
AA-16 (1/2)
MICROPHONES
CN1019 CH-1
CN1020 CH-2
MC-28
MIC AMP
AU-124A (1/3)
AUDIO LEVEL CH-1
AUDIO LEVEL CH-2
TRACKING
VR-80
H1003 (1/3)
CH-1 LINE AMP
CH-1 PB AMP
BIAS TRAP
CH-1 REC AMP
CROSSTALK CANCEL
SAME AS CHANNEL 1
H1003 (2/3)
CH-1 ERASE
CH-2 ERASE
ERASE OSC
FULL ERASE
FULL ERASE OSC
H1005
AU-124A (2/3)
CH-1/2 PILOT AMP
INTEGRATOR DIFF AMP
DOLBY DET MEMORY
DOLBY PILOT SIGNAL AMP
DOLBY C NOISE REDUCTION
NR-31A (1/2)
AF POWER AMP
CH-1/2 METER DRIVE
AU-124A (3/3)
MT-53
OUTPUT AMP
AA-16 (2/2)
CN1017 CH-1
CN1018 CH-2
LINE OUT
CN1003 AUDIO MONITOR
MONITOR SELECT SW
CHANNEL SELECT SW
SW-315A (2/3)
CN1013 HEADPHONES
HP-42
REMOTE 9P
RM-66
TIME CODE READER (OPTION)
EC-32
H1002 CTL PB
CTL PULSE SELECTOR
PH-5 TAPE BEGINNING SENSOR
PH-5 TAPE END SENSOR
TG-22
SE-46 TENSION REGULATOR DET
PTC-35 SUPPLY ROTATION DET
PTC-35 TAKE UP ROTATION DET
PTC-34 FR UNTHREAD END DET
PTC-33 THREAD END/ UNTHREAD END DET
CC-38 CASSETTE DOWN DET
CC-37 CASSETTE IN DET
CN1005 TC IN
H1004 TIME CODE
REC LIMIT AMP
PB LIMIT AMP
TC REC LEVEL
TIME CODE OUTPUT AMP
TIME CODE DETECT
CN1006 TC OUT
NR-31A (2/2)
DC-31P
+5V REG
REG +12V
SYS +12V
REG +7V
REG +5V
CN1001 AC IN
S1001 POWER
AC-98
SW REG
UR-02
PB1001 SPEED PG
PB1002 SPEED FG
PB1003 PHASE PG
CN1009 EXT SYNC IN
DRUM SPEED SERVO PWM
DRUM PHASE SERVO PWM
COMPARATOR
AFC
DRUM ERROR AMP
DRUM MOTOR DRIVE
M1002 DRUM
DME
CAPSTAN SPEED SERVO PWM
CAPSTAN ERROR AMP
SERVO SYSTEM CONTROL
CAPSTAN MOTOR DRIVE
M1001 CAPSTAN
H1003 (3/3)
CTL REC/PB
CTL REC/ PB AMP
CAPSTAN PHASE SERVO PWM
SV-112C


SYNC
Y/C MIX AMP
CHARACTER INSERT
DUS-271
CN1011 VIDEO OUT
COLOR LOCK SW
SW-315A (3/3)
CP-136
CN1004 VIDEO MONITOR
CN1002 AUDIO MONITOR
CHARA SIG
CHARA BACK
L:PB CHARA ON
PILOT BURST MUTE
(FROM SY)
DUB Y
SP
MD, AU
924kHz CHROMA
685kHz CHROMA
MIX C
DM-72
(TO SV, SY)
COLOR CLOCK
SYNC SEP
PHASE/ WIDTH MM
ACC/APC DET
ACC
APC
REF 4.43MHz
PB 135° BURST GENE
PB 135° BURST
PILOT BURST MUTE
PB SYNC
VCO
FREQ CONV
REF 5.35MHz
ACK
FREQ CONV
CHROMA AMP
NOISE CANCEL
MIX C
924kHz CHROMA
H;HIGH BAND
ACC AMP
DUB Y/C DELAY
DUB C AMP
DUB C
685kHz CHROMA
DM-73
CN1013 DUB OUT
CN1017 CH-1
LINE OUT
CN1018 CH-2
SEARCH DIAL
PTC-32
EXPANDER
8-BIT KEY MICRO COMPUTOR
7-SEGMENT DRIVER
DISPLAY
DP-62
MATRIX /LED DRIVER
FUNCTION CONTROL LEDS
KY-159A
RM-66
REMOTE DATA I/O CONTROL
TIME CODE READER (OPTION)
SYSTEM CONTROLLER AND TIME CODE DATA MEMORY
ROM/RAM
SIO
KEY SERIAL DATA I/O
SERIAL DATA
PORT EXPANDER
CTL PULSE SELECTOR
CHARACTER GENERATOR
PB SYNC
CHARA BACK
CHARA SIG
(TO DM-73)
(TO DM-72)
CN1021 REMOTE
REMOTE MICRO COPUTER
IF-229
OPTION
PH-5
TAPE END SENSOR
SE-46
TENSION REGULATOR DET
PTC-35
TAKE UP ROTATION DET
PTC-33
THREAD END/ UNTHREAD END DET
CC-37
CASSETTE IN DET
MECHA MICRO COMPUTER
AUDIO CONTROL
VIDEO CONTROL
S-IDLER SOL
S-BRAKE SOL
SKEW SOL
SEARCH SOL
PINCH SOL
REEL MOTOR
T-IDLER SOL
T-BRAKE SOL
CASSETTE COMPARTMENT MOTOR DRIVE
THREADING MOTOR DRIVE
SY-141C
MIS REC SW
SP SW
(TO DM-72)
PTC-30
M1003 THREAD
LM-13
REEL MOTOR
REEL DRIVER
PT-9
T-IDLER SOL
T IDLER DRIVER
T-BRAKE SOL
T BRAKE DRIVER
PD-41
RM-39
M1006 REEL MOTOR
PM1001 TAKE UP IDLER SOL
PM1002 TAKE UP BRAKE SOL
M1005 CASSETTE COMPARTMENT
+12V
CC-36
LP-41
S-IDLER SOL
S-IDLER DRIVE
PM1004 SUPPLY IDLER SOL
S-BRAKE SOL
S BRAKE DRIVE
PM1005 SUPPLY BRAKE SOL
SKEW SOL
SKEW DRIVE
PM1006 SKEW SOL
SEARCH SOL
SEARCH DRIVE
PM1007 SEARCH SOL
PINCH SOL
PINCH DRIVE
PM1008 PINCH SOL
PD-40

OVERALL

VO-9800P (1)

VIDEO SYSTEM
Y/C SEPARATOR, Y MODULATOR,
C REC PROCESSOR,
METER DRIVER


CN1014
DUB IN (1/2)
165-1
DUB Y (Y)
CN1007
VIDEO IN 1
CN1008
VIDEO IN 2
170-1
VIDEO (X)
Q401
BUFF
TP401
FL401
LPF
Q402, 403
PHASE EQ
Q429
H:SP
RV401
Y PHASE EQ
IC401
Y AMP
TP402
IC1
L:DUB
TP1
Q1
BUFF
IC3 (1/5)
AGC AMP
DC AMP
Q2
BUFF
DL1
DELAY
Q3
BUFF
Q6
DELAY
Q7
BUFF
RV1
FM DEVIATION
COLOR FRAMING PULSE GENERATOR
DM-73
172-8
CHROMA (X)
Q820
CHROMA AMP
Q810
BUFF
TP802
172-6
L:DUB F.P (X)
TP805
TP804
Q815, 816
C.F PULSE INVERTER
IC802~804
C.F PULSE GENERATOR
Q812, 813
AMP
TP803
IC801
PHASE DET
Q809
SC AMP
172-1
PB SYNC (X)
Q814
PB SYNC AMP
172-7
L:SERVO LOCK
Q817
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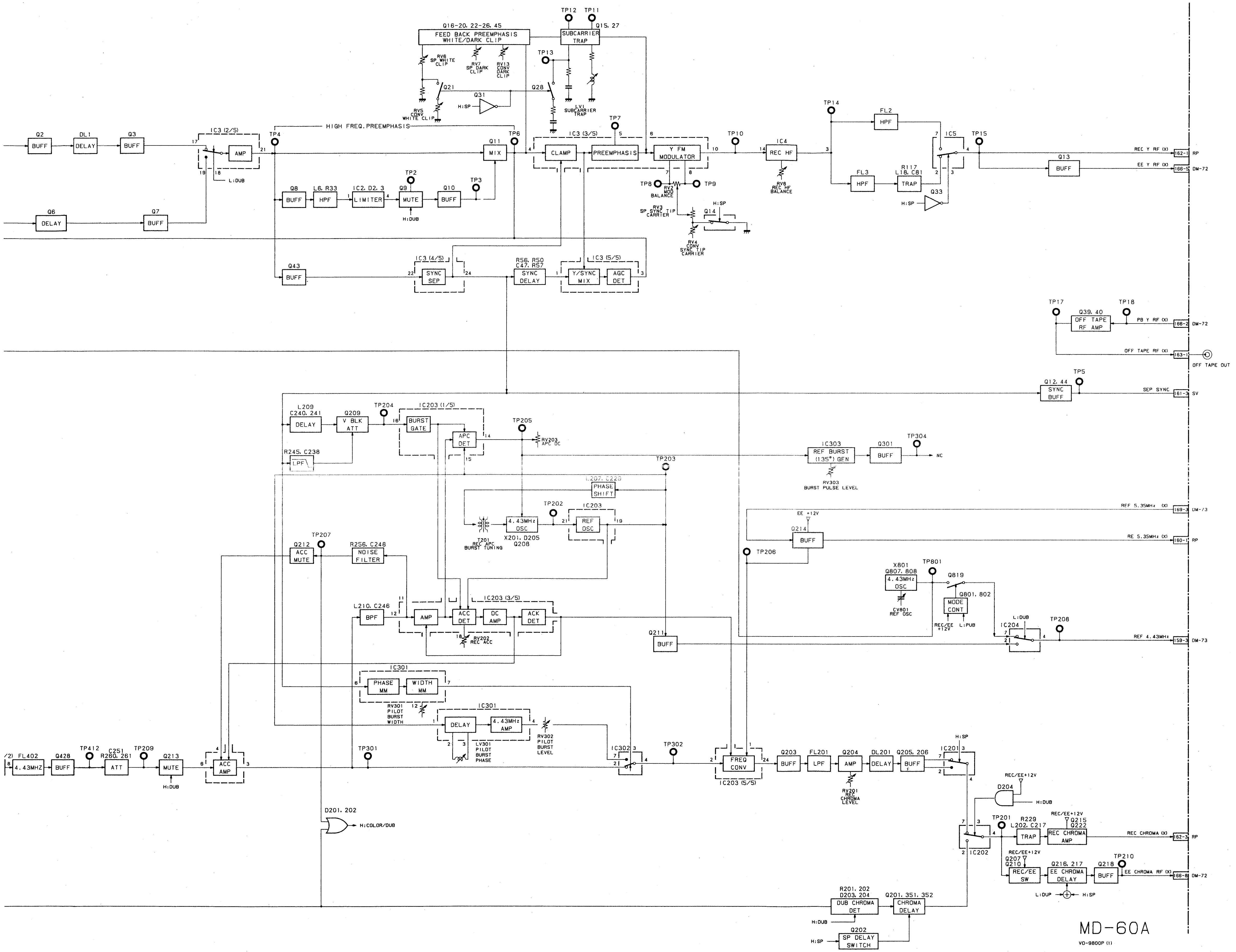
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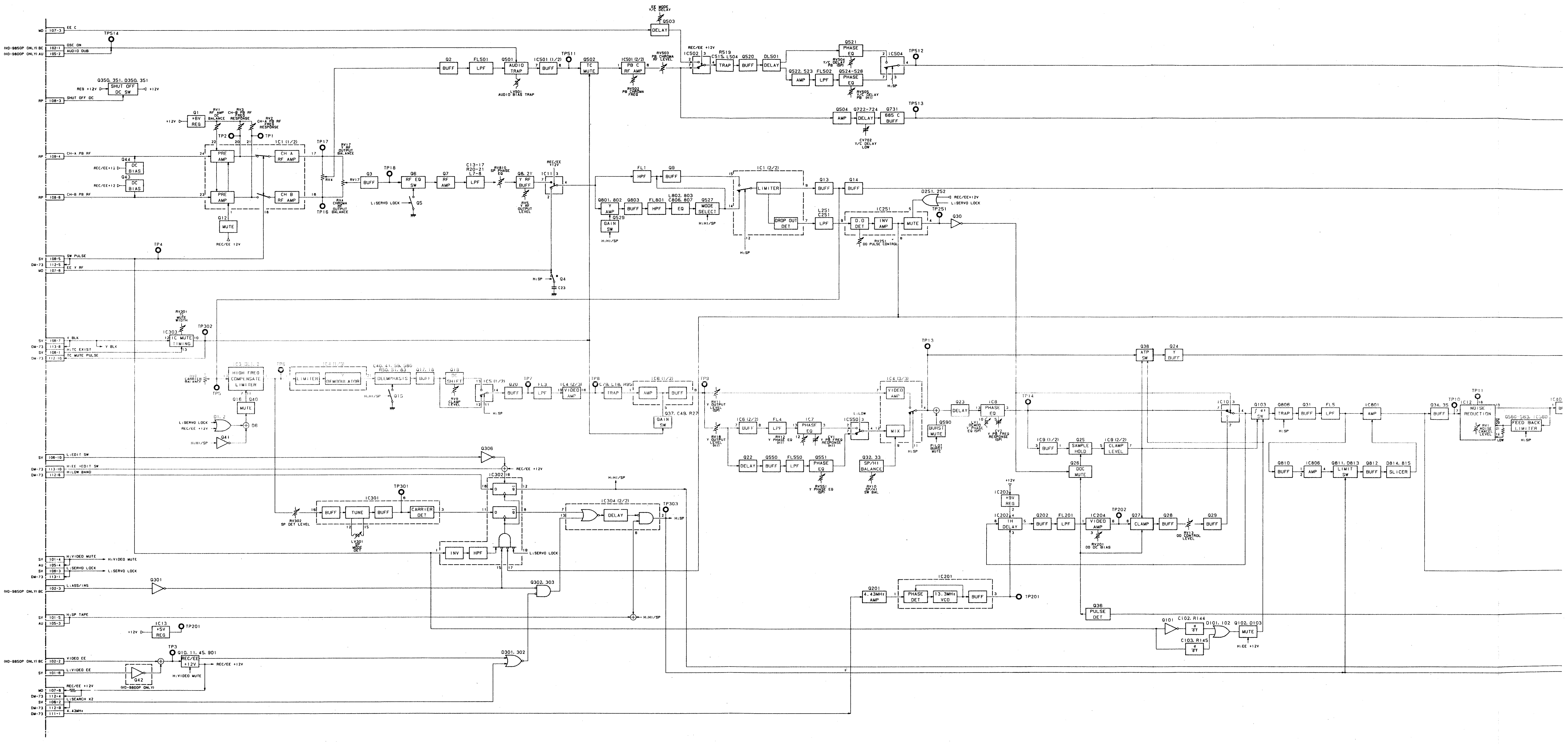

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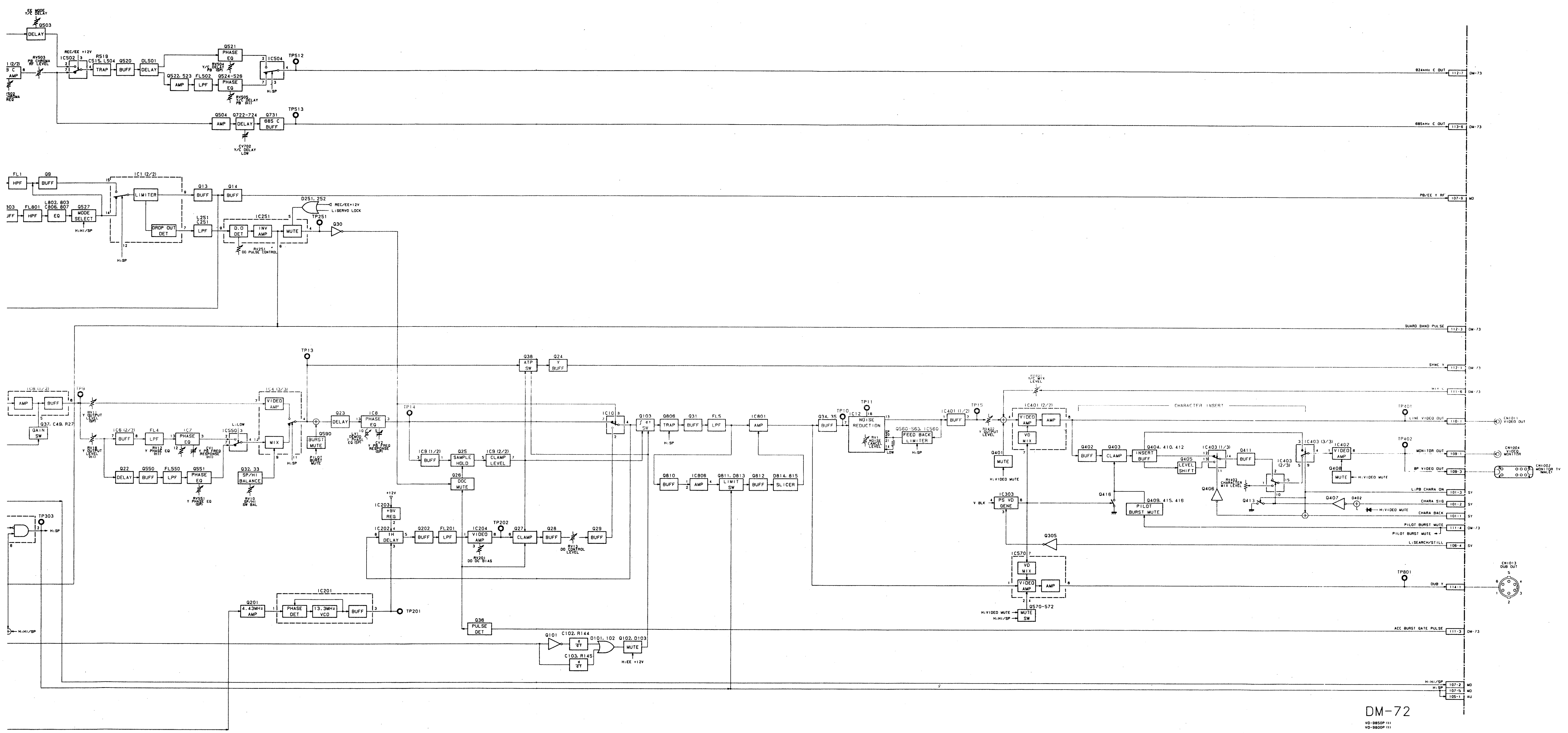
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VIDEO SYSTEM
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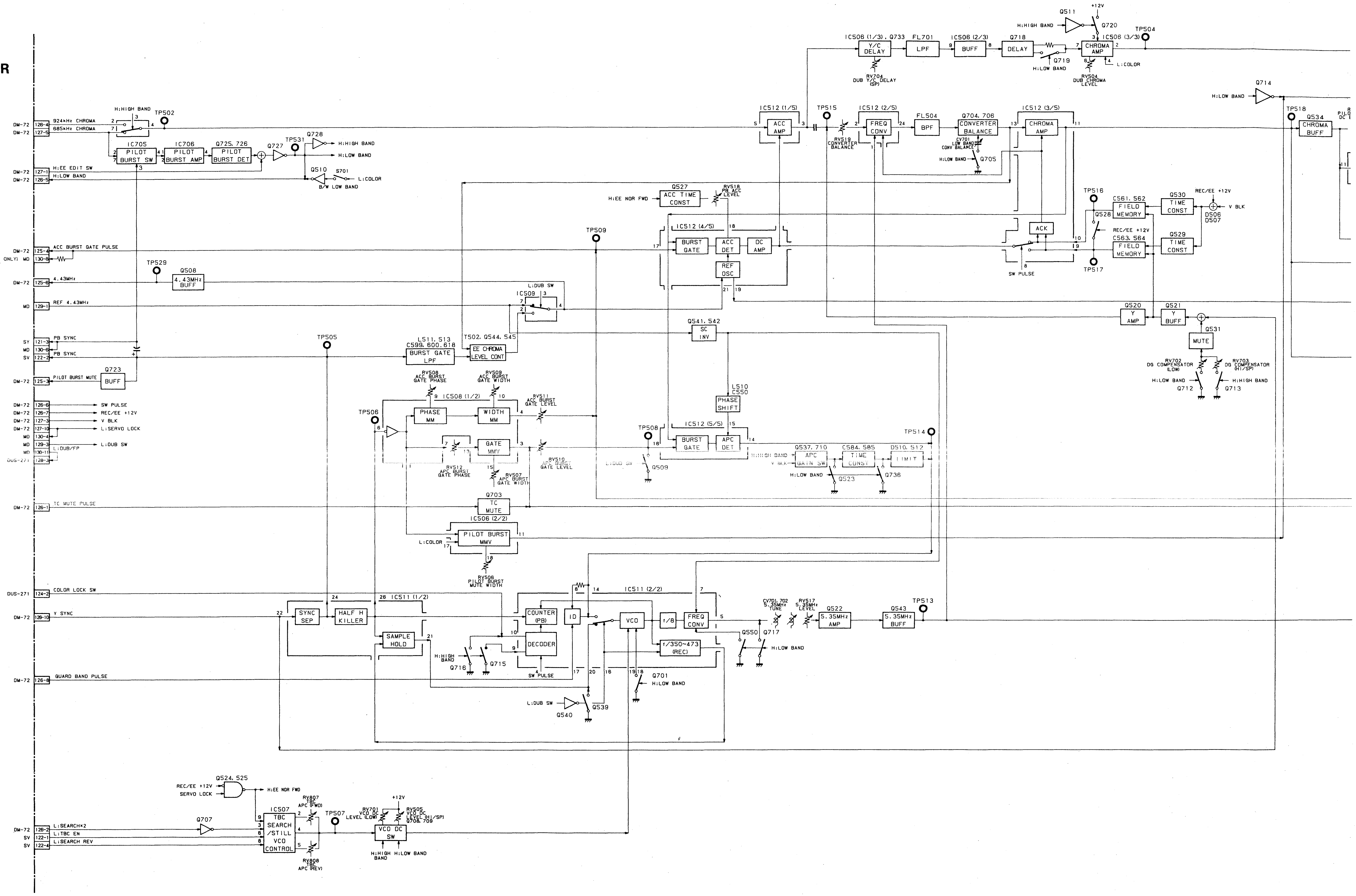

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DM-72 127-5 685kHz CHROMA
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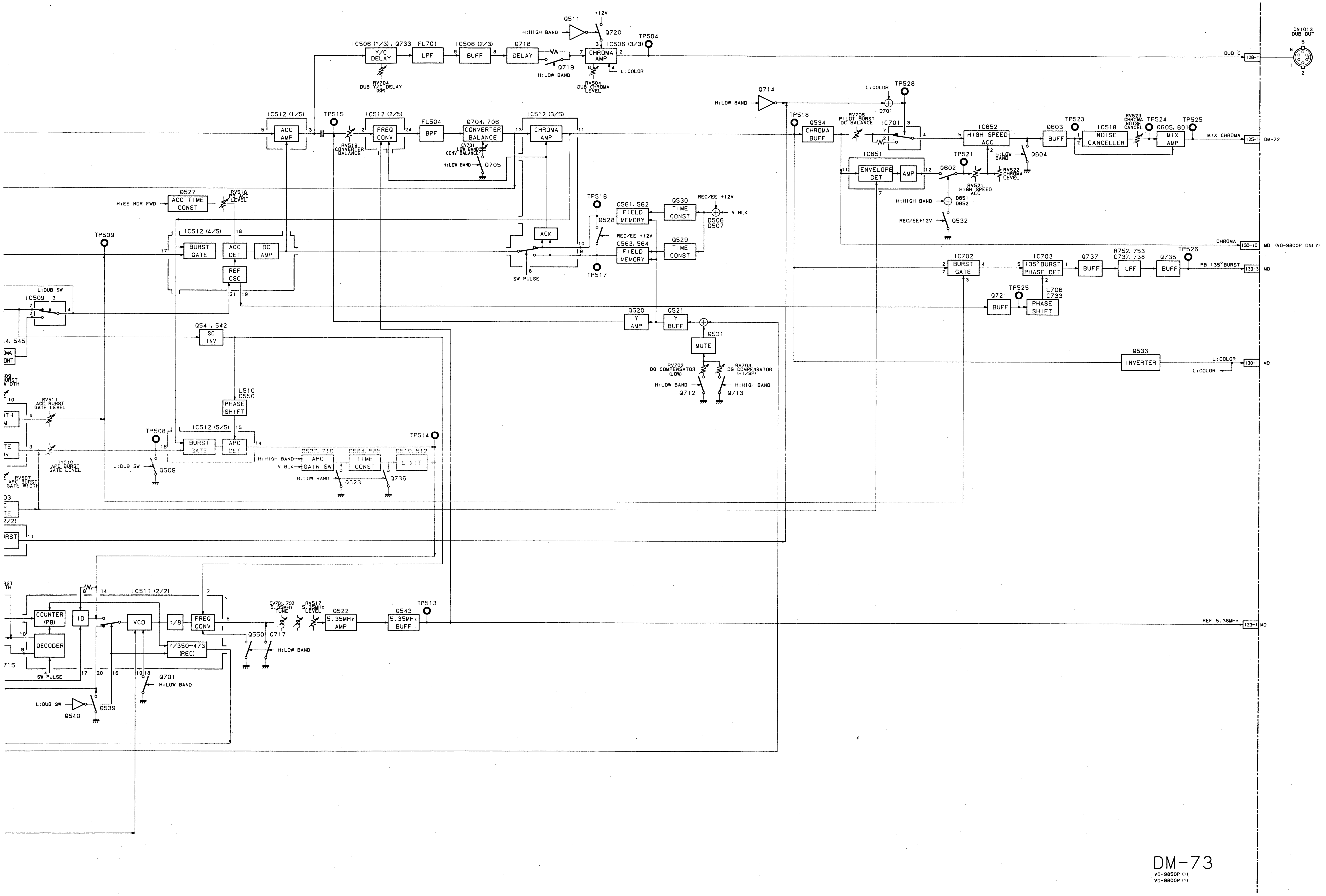
IC506 (1/3), Q733
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RV704 DUB Y/C DELAY (SP)
FL701
LPF
IC506 (2/3)
BUFF
Q718
DELAY
Q511
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H:LOW BAND
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FL504
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CV701, 702 5.35MHz TUNE
RV517 5.35MHz LEVEL
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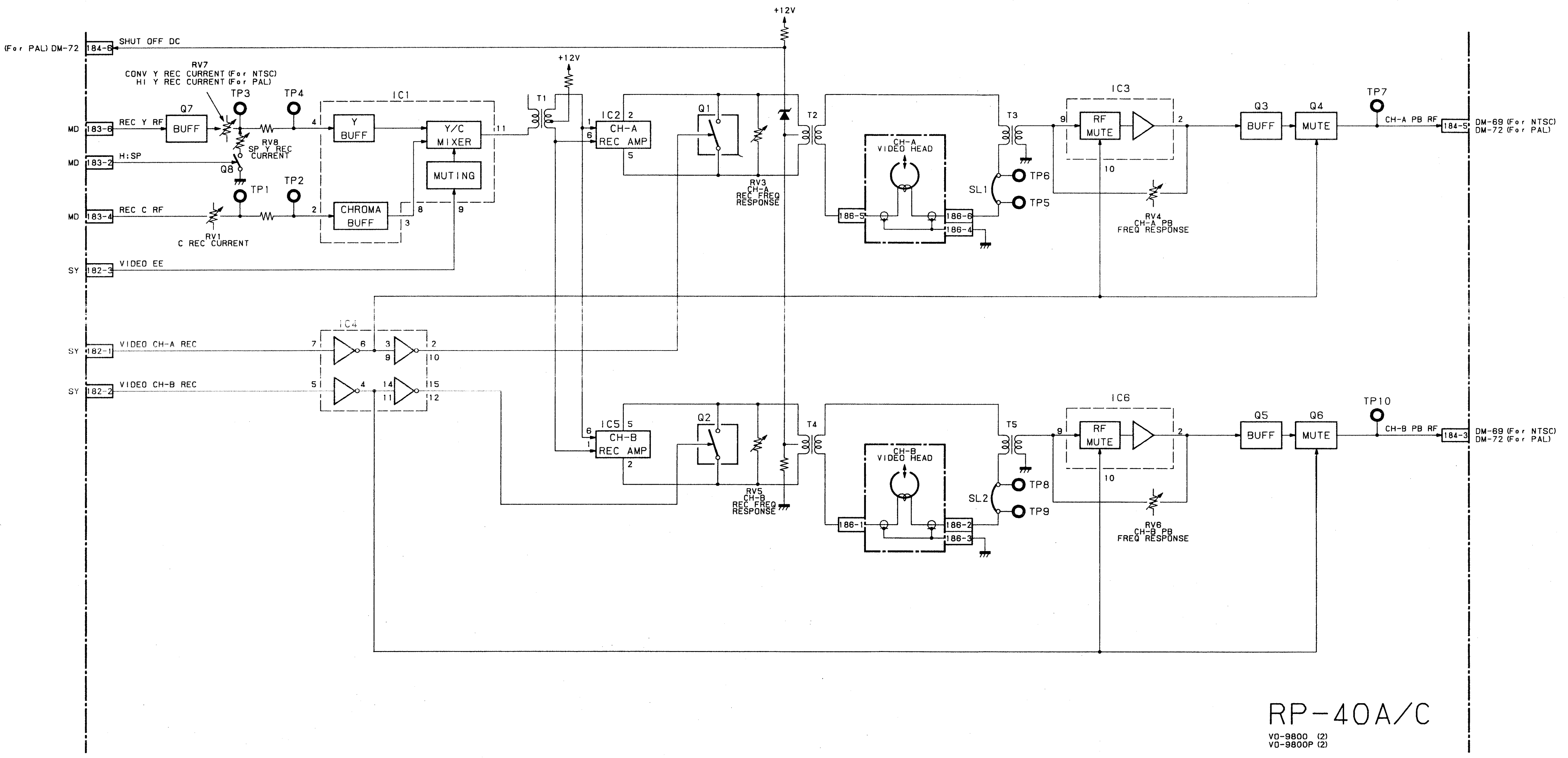
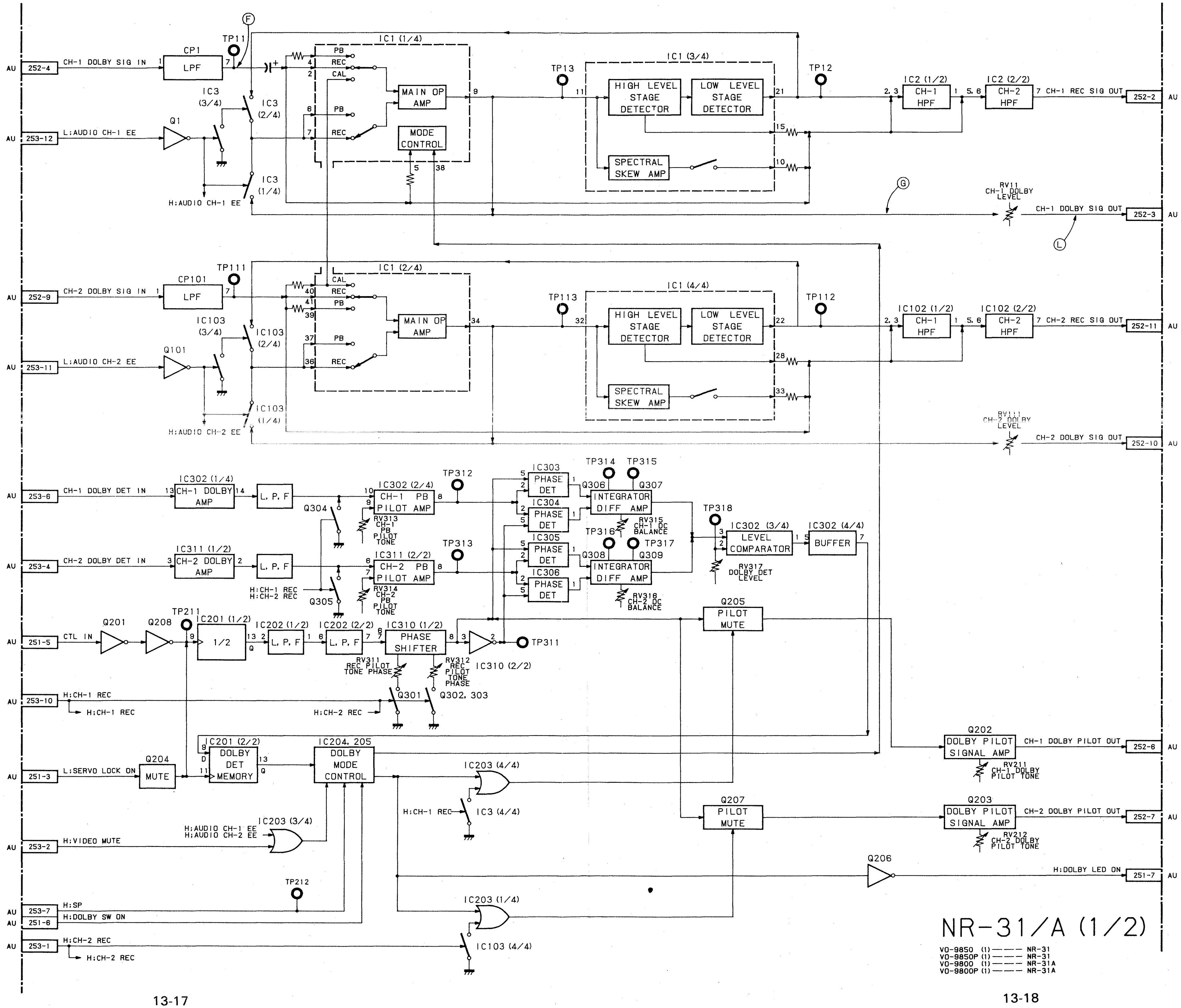
VIDEO SYSTEM
REC/PB AMPLIFIER


(For PAL) DM-72
184-6
SHUT OFF DC
+12V
RV7
CONV Y REC CURRENT (For NTSC)
HI Y REC CURRENT (For PAL)
TP3
TP4
IC1
MD
183-6
REC Y RF
Q7
BUFF
RV8
SP Y REC CURRENT
Y BUFF
Y/C MIXER
MD
183-2
H:SP
Q8
MUTING
TP1
TP2
MD
183-4
REC C RF
CHROMA BUFF
RV1
C REC CURRENT
SY
182-3
VIDEO EE
T1
IC2
CH-A REC AMP
Q1
RV3
CH-A
REC FREQ RESPONSE
T2
CH-A VIDEO HEAD
186-5
186-6
186-4
T3
SL1
TP6
TP5
IC3
RF MUTE
RV4
CH-A PB
FREQ RESPONSE
Q3
BUFF
Q4
MUTE
TP7
CH-A PB RF
184-5
DM-69 (For NTSC)
DM-72 (For PAL)
IC4
SY
182-1
VIDEO CH-A REC
SY
182-2
VIDEO CH-B REC
IC5
CH-B REC AMP
Q2
RV5
CH-B
REC FREQ RESPONSE
T4
CH-B VIDEO HEAD
186-1
186-2
186-3
T5
SL2
TP8
TP9
IC6
RF MUTE
RV6
CH-B PB
FREQ RESPONSE
Q5
BUFF
Q6
MUTE
TP10
CH-B PB RF
184-3
DM-69 (For NTSC)
DM-72 (For PAL)
RP-40A/C
VO-9800 (2)
VO-9800P (2)

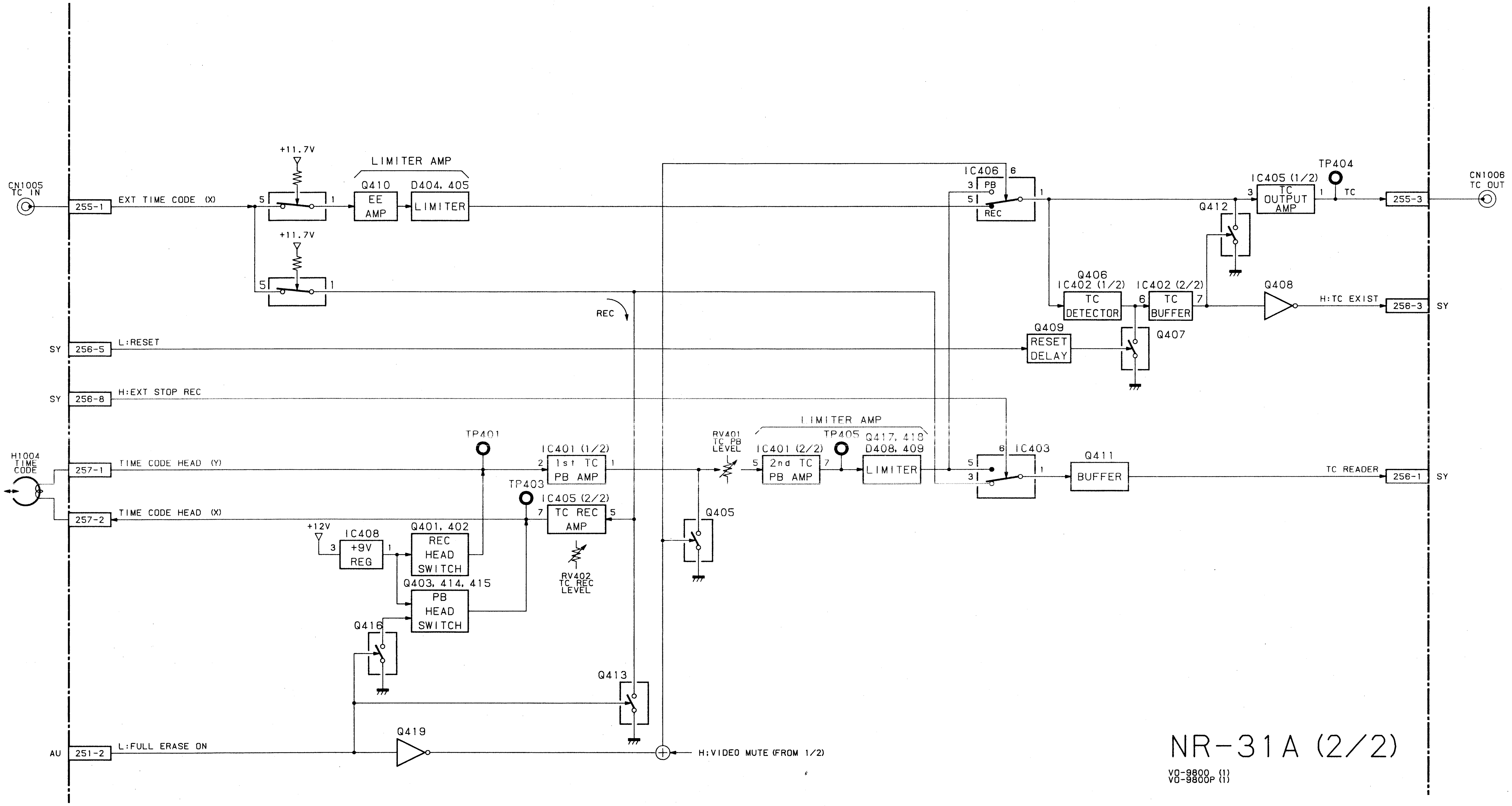
AUDIO SYSTEM
DOLBY NR,
NR PILOT
REC/PB


AU 252-4 CH-1 DOLBY SIG IN
CP1 LPF
TP11
F
IC1 (1/4)
PB
REC
CAL
MAIN OP AMP
MODE CONTROL
IC3 (3/4)
IC3 (2/4)
IC3 (1/4)
Q1
AU 253-12 L:AUDIO CH-1 EE
H:AUDIO CH-1 EE
TP13
IC1 (3/4)
HIGH LEVEL STAGE DETECTOR
LOW LEVEL STAGE DETECTOR
SPECTRAL SKEW AMP
TP12
IC2 (1/2) CH-1 HPF
IC2 (2/2) CH-2 HPF
CH-1 REC SIG OUT 252-2 AU
G
RV11 CH-1 DOLBY LEVEL
CH-1 DOLBY SIG OUT 252-3 AU
L
AU 252-9 CH-2 DOLBY SIG IN
CP101 LPF
TP111
IC1 (2/4)
IC103 (3/4)
IC103 (2/4)
IC103 (1/4)
Q101
AU 253-11 L:AUDIO CH-2 EE
H:AUDIO CH-2 EE
TP113
IC1 (4/4)
TP112
IC102 (1/2) CH-1 HPF
IC102 (2/2) CH-2 HPF
CH-2 REC SIG OUT 252-11 AU
RV111 CH-2 DOLBY LEVEL
CH-2 DOLBY SIG OUT 252-10 AU
AU 253-6 CH-1 DOLBY DET IN
IC302 (1/4) CH-1 DOLBY AMP
L. P. F
Q304
IC302 (2/4) CH-1 PB PILOT AMP
RV313 CH-1 PB PILOT TONE
TP312
IC303 PHASE DET
IC304 PHASE DET
TP314 TP315
Q306 Q307
INTEGRATOR DIFF AMP
RV315 CH-1 DC BALANCE
TP316 TP317
IC305 PHASE DET
IC306 PHASE DET
Q308 Q309
INTEGRATOR DIFF AMP
RV316 CH-2 DC BALANCE
TP318
IC302 (3/4) LEVEL COMPARATOR
RV317 DOLBY DET LEVEL
IC302 (4/4) BUFFER
AU 253-4 CH-2 DOLBY DET IN
IC311 (1/2) CH-2 DOLBY AMP
IC311 (2/2) CH-2 PB PILOT AMP
RV314 CH-2 PB PILOT TONE
TP313
H:CH-1 REC
H:CH-2 REC
Q305
Q201 Q208
TP211
AU 251-5 CTL IN
IC201 (1/2) 1/2
IC202 (1/2) L. P. F
IC202 (2/2) L. P. F
IC310 (1/2) PHASE SHIFTER
RV311 REC PILOT TONE PHASE
RV312 REC PILOT TONE PHASE
IC310 (2/2)
TP311
Q205 PILOT MUTE
Q301
Q302, 303
AU 253-10 H:CH-1 REC
H:CH-1 REC
H:CH-2 REC
IC201 (2/2) DOLBY DET MEMORY
IC204, 205 DOLBY MODE CONTROL
Q204 MUTE
AU 251-3 L:SERVO LOCK ON
IC203 (4/4)
H:CH-1 REC
IC3 (4/4)
Q207 PILOT MUTE
Q202 DOLBY PILOT SIGNAL AMP
CH-1 DOLBY PILOT OUT 252-6 AU
RV211 CH-1 DOLBY PILOT TONE
Q203 DOLBY PILOT SIGNAL AMP
CH-2 DOLBY PILOT OUT 252-7 AU
RV212 CH-2 DOLBY PILOT TONE
IC203 (3/4)
H:AUDIO CH-1 EE
H:AUDIO CH-2 EE
AU 253-2 H:VIDEO MUTE
Q206
H:DOLBY LED ON 251-7 AU
TP212
AU 253-7 H:SP
AU 251-6 H:DOLBY SW ON
IC203 (1/4)
AU 253-1 H:CH-2 REC
H:CH-2 REC
IC103 (4/4)

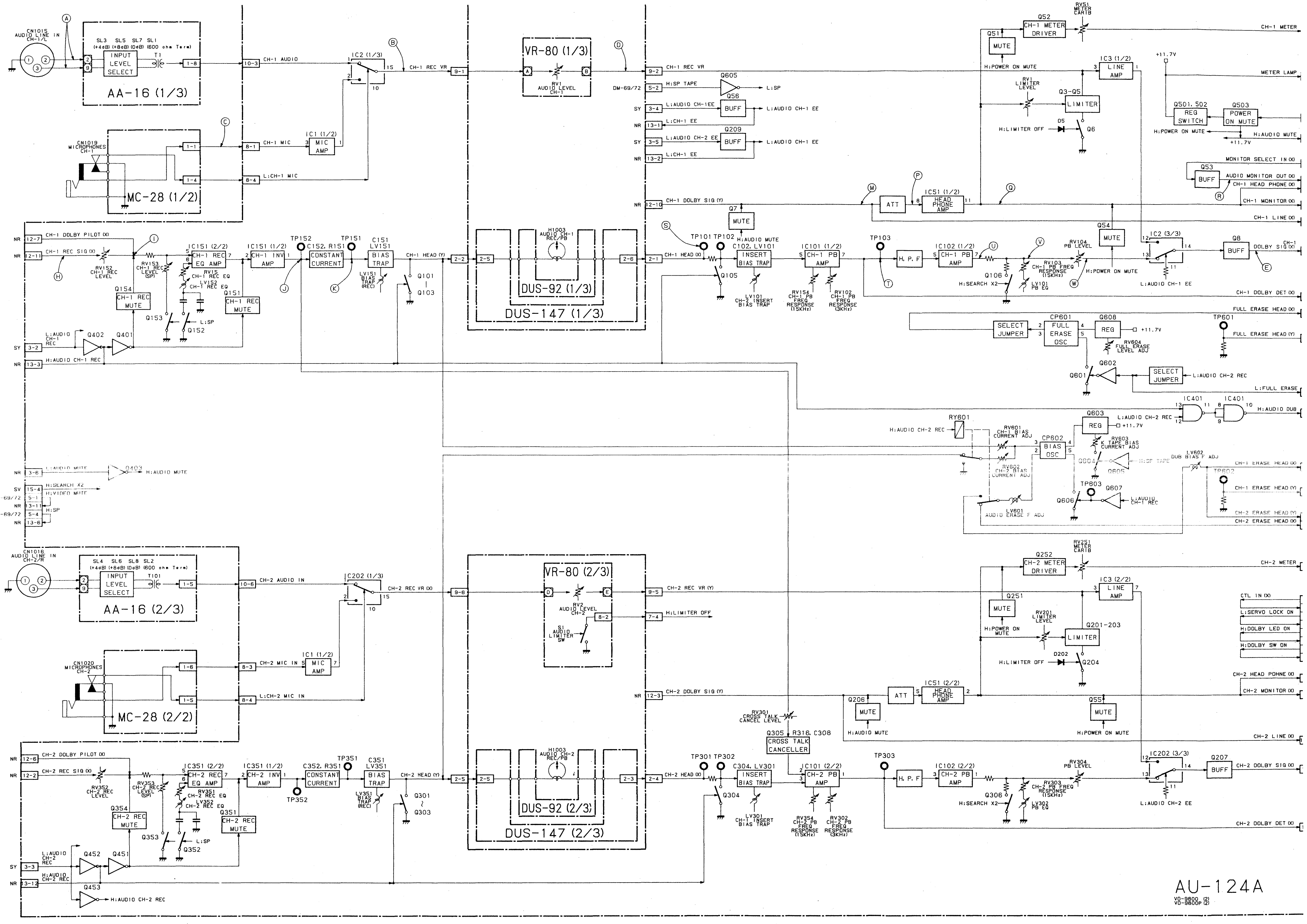
NR-31/A (1/2)

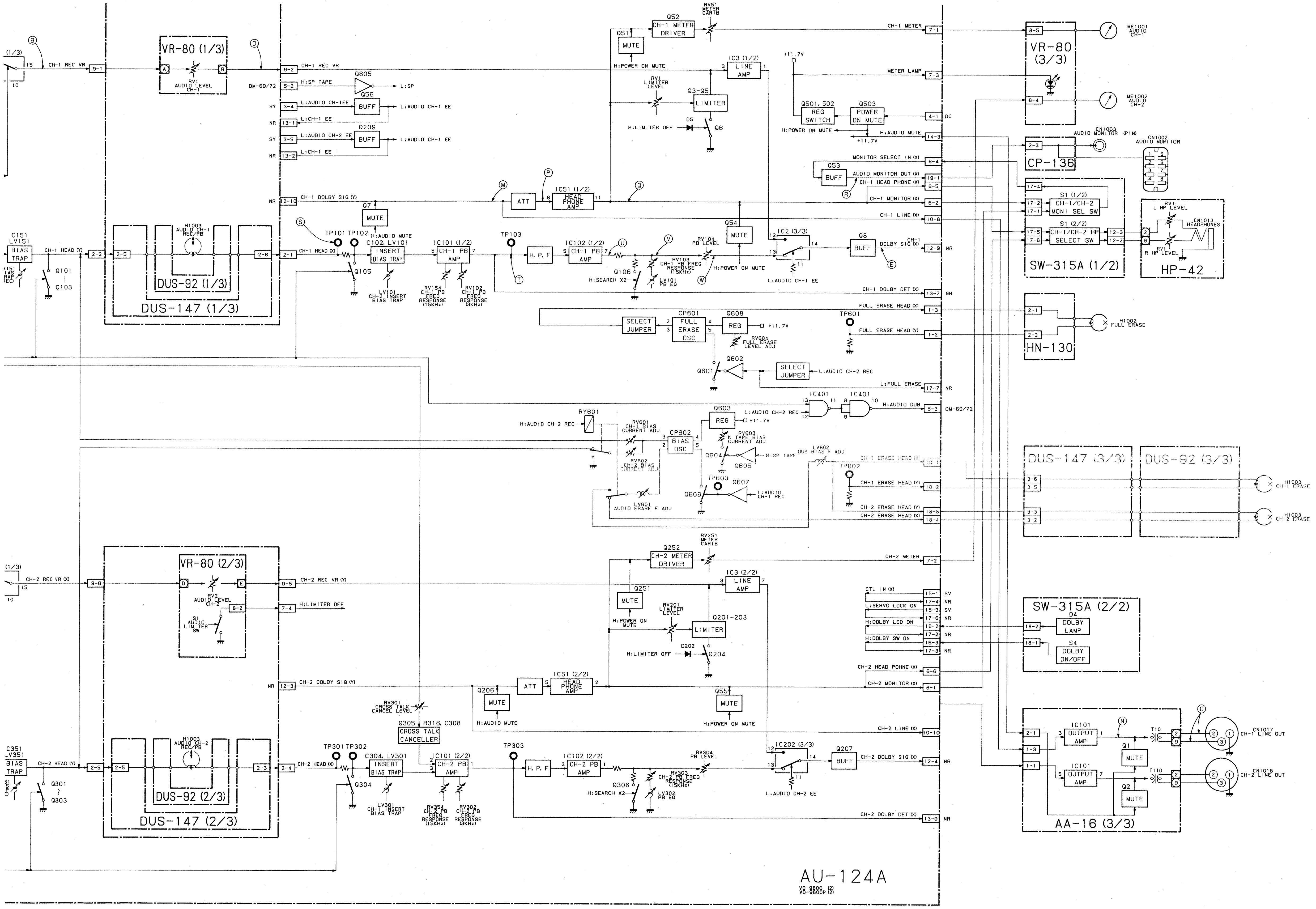
VO-9850 (1) ——— NR-31
VO-9850P (1) ——— NR-31
VO-9800 (1) ——— NR-31A
VO-9800P (1) ——— NR-31A

AUDIO SYSTEM
TIME CODE REC/PB AMPLIFIER


CN1005
TC IN
255-1
EXT TIME CODE (X)
+11.7V
5
1
+11.7V
5
1
LIMITER AMP
Q410
EE
AMP
D404, 405
LIMITER
REC
SY
256-5
L:RESET
SY
256-8
H:EXT STOP REC
H1004
TIME
CODE
257-1
TIME CODE HEAD (Y)
257-2
TIME CODE HEAD (X)
TP401
IC401 (1/2)
2
1st TC
PB AMP
1
TP403
IC405 (2/2)
7
TC REC
AMP
5
RV402
TC REC
LEVEL
+12V
IC408
3
+9V
REG
1
Q401, 402
REC
HEAD
SWITCH
Q403, 414, 415
PB
HEAD
SWITCH
Q416
Q413
AU
251-2
L:FULL ERASE ON
Q419
H:VIDEO MUTE (FROM 1/2)
RV401
TC PB
LEVEL
LIMITER AMP
TP405
IC401 (2/2)
5
2nd TC
PB AMP
7
Q417, 418
D408, 409
LIMITER
Q405
IC406
6
3
PB
5
REC
1
IC403
6
5
3
1
Q411
BUFFER
TC READER
256-1
SY
Q409
RESET
DELAY
Q407
Q406
IC402 (1/2)
TC
DETECTOR
6
IC402 (2/2)
TC
BUFFER
7
Q408
H:TC EXIST
256-3
SY
Q412
IC405 (1/2)
3
TC
OUTPUT
AMP
1
TP404
TC
255-3
CN1006
TC OUT
NR-31A (2/2)
VO-9800 (1)
VO-9800P (1)

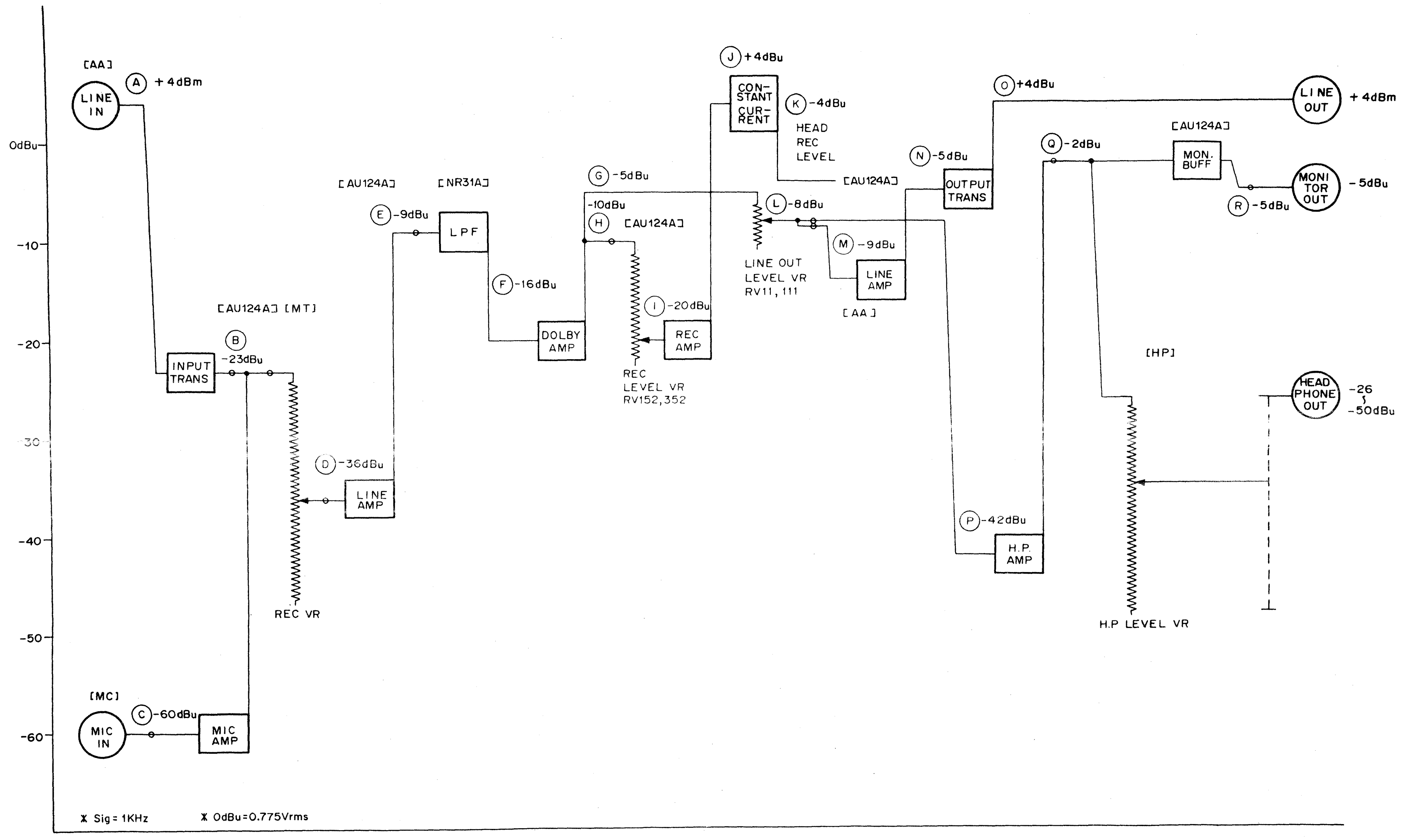
AUDIO SYSTEM
REC/PB AMPLIFIER
ERASE/BIAS OSCILLATOR


CN1015 AUDIO LINE IN CH-1/L
INPUT LEVEL SELECT
SL3 SL5 SL7 SL1 (+4dB) (+8dB) (0dB) (600 ohm Term)
T1
AA-16 (1/3)
CN1019 MICROPHONES CH-1
MC-28 (1/2)
CH-1 AUDIO
CH-1 MIC
L:CH-1 MIC
IC2 (1/3)
IC1 (1/2) MIC AMP
CH-1 REC VR
VR-80 (1/3)
RV1 AUDIO LEVEL CH-1
DM-69/72
H:SP TAPE
Q605
L:SP
Q56 BUFF
L:AUDIO CH-1 EE
Q209 BUFF
L:CH-1 EE
L:AUDIO CH-2 EE
CH-1 DOLBY SIG (Y)
CH-1 DOLBY PILOT (X)
CH-1 REC SIG (X)
RV152 CH-1 REC LEVEL
RV153 CH-1 REC LEVEL (SP)
IC151 (2/2) CH-1 REC EQ AMP
RV151 CH-1 REC EQ
LV152 CH-1 REC EQ
Q154 CH-1 REC MUTE
Q151 CH-1 REC MUTE
Q153
Q152
IC151 (1/2) CH-1 INV AMP
TP152
C152, R151 CONSTANT CURRENT
TP151
C151 LV151 BIAS TRAP
LV151 BIAS TRAP (REC)
CH-1 HEAD (Y)
Q101
Q103
H1003 AUDIO CH-1 REC/PB
DUS-92 (1/3)
DUS-147 (1/3)
Q7 MUTE
H:AUDIO MUTE
TP101 TP102
C102, LV101 INSERT BIAS TRAP
Q105
LV101 CH-1 INSERT BIAS TRAP
IC101 (1/2) CH-1 PB AMP
RV154 CH-1 PB FREQ RESPONSE (15KHz)
RV102 CH-1 PB FREQ RESPONSE (3KHz)
TP103
H. P. F
IC102 (1/2) CH-1 PB AMP
Q106
H:SEARCH X2
RV103 CH-1 PB FREQ RESPONSE (15KHz)
LV101 PB EQ
RV104 PB LEVEL
Q54 MUTE
H:POWER ON MUTE
IC2 (3/3)
Q8 BUFF
DOLBY SIG (X) CH-1
L:AUDIO CH-1 EE
CH-1 DOLBY DET (X)
ATT
ICS1 (1/2) HEAD PHONE AMP
Q51 MUTE
Q52 CH-1 METER DRIVER
RV51 METER CARIB
CH-1 METER
H:POWER ON MUTE
IC3 (1/2) LINE AMP
RV1 LIMITER LEVEL
Q3-Q5 LIMITER
H:LIMITER OFF
D5
Q6
+11.7V
METER LAMP
Q501, 502 REG SWITCH
Q503 POWER ON MUTE
H:AUDIO MUTE
MONITOR SELECT IN (X)
Q53 BUFF
AUDIO MONITOR OUT (X)
CH-1 HEAD PHONE (X)
CH-1 MONITOR (X)
CH-1 LINE (X)
FULL ERASE HEAD (X)
TP601
FULL ERASE HEAD (Y)
SELECT JUMPER
CP601 FULL ERASE OSC
Q608 REG
RV604 FULL ERASE LEVEL ADJ
Q602
Q601
SELECT JUMPER
L:AUDIO CH-2 REC
L:FULL ERASE
IC401
H:AUDIO DUB
RY601
H:AUDIO CH-2 REC
RV601 CH-1 BIAS CURRENT ADJ
Q603 REG
CP602 BIAS OSC
RV603 K TAPE BIAS CURRENT ADJ
LV602 DUB BIAS F ADJ
Q604
Q605
RV602 CH-2 BIAS CURRENT ADJ
TP603
Q607
Q606
L:AUDIO CH-1 REC
LV601 AUDIO ERASE F ADJ
TP602
CH-1 ERASE HEAD (X)
CH-1 ERASE HEAD (Y)
CH-2 ERASE HEAD (X)
CH-2 ERASE HEAD (Y)
L:AUDIO CH-1 REC
Q402
Q401
H:AUDIO CH-1 REC
L:AUDIO MUTE
Q403
H:AUDIO MUTE
H:SEARCH X2
H:VIDEO MUTE
H:SP
CN1016 AUDIO LINE IN CH-2/R
SL4 SL6 SL8 SL2
T101
AA-16 (2/3)
CH-2 AUDIO IN
IC202 (1/3)
CH-2 REC VR (X)
VR-80 (2/3)
RV2 AUDIO LEVEL CH-2
S1 AUDIO LIMITER SW
CH-2 REC VR (Y)
H:LIMITER OFF
CN1020 MICROPHONES CH-2
MC-28 (2/2)
CH-2 MIC IN
L:CH-2 MIC IN
IC1 (1/2) MIC AMP
CH-2 DOLBY SIG (Y)
RV301 CROSS TALK CANCEL LEVEL
Q305 R316, C308 CROSS TALK CANCELLER
CH-2 DOLBY PILOT (X)
CH-2 REC SIG (X)
RV352 CH-2 REC LEVEL
RV353 CH-2 REC LEVEL (SP)
IC351 (2/2) CH-2 REC EQ AMP
RV351 CH-2 REC EQ
LV352 CH-2 REC EQ
Q354 CH-2 REC MUTE
Q351 CH-2 REC MUTE
Q353
Q352
IC351 (1/2) CH-2 INV AMP
C352, R351 CONSTANT CURRENT
TP351
TP352
C351 LV351 BIAS TRAP
LV351 BIAS TRAP (REC)
CH-2 HEAD (Y)
Q301
Q303
H1003 AUDIO CH-2 REC/PB
DUS-92 (2/3)
DUS-147 (2/3)
TP301 TP302
CH-2 HEAD (X)
C304, LV301 INSERT BIAS TRAP
Q304
LV301 CH-2 INSERT BIAS TRAP
IC101 (2/2) CH-2 PB AMP
RV354 CH-2 PB FREQ RESPONSE (15KHz)
RV302 CH-2 PB FREQ RESPONSE (3KHz)
TP303
IC102 (2/2) CH-2 PB AMP
Q306
RV303 CH-2 PB FREQ RESPONSE (15KHz)
LV302 PB EQ
RV304 PB LEVEL
IC202 (3/3)
Q207 BUFF
CH-2 DOLBY SIG (X)
L:AUDIO CH-2 EE
CH-2 DOLBY DET (X)
Q206 MUTE
H:AUDIO MUTE
ATT
ICS1 (2/2) HEAD PHONE AMP
Q55 MUTE
H:POWER ON MUTE
CH-2 LINE (X)
CH-2 HEAD POHNE (X)
CH-2 MONITOR (X)
Q252 CH-2 METER DRIVER
RV251 METER CARIB
CH-2 METER
IC3 (2/2) LINE AMP
Q251 MUTE
RV201 LIMITER LEVEL
Q201-203 LIMITER
D202
Q204
CTL IN (X)
L:SERVO LOCK ON
H:DOLBY LED ON
H:DOLBY SW ON
Q452
Q451
L:AUDIO CH-2 REC
H:AUDIO CH-2 REC
Q453
AU-124A
VO-9800 (2)
VO-9800P (2)

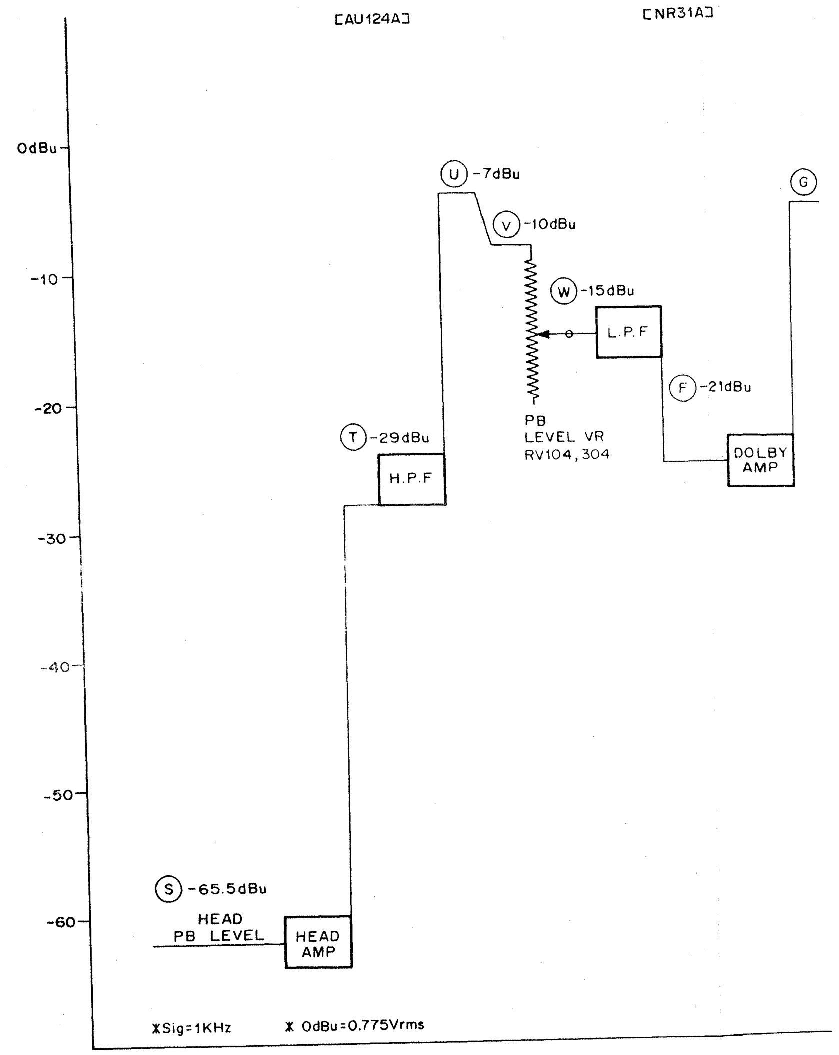

(1/3)
15
10
CH-1 REC VR
9-1
VR-80 (1/3)
RV1 AUDIO LEVEL CH-1
9-2
CH-1 REC VR
DM-69/72
5-2
H;SP TAPE
Q605
L;SP
SY
3-4
L;AUDIO CH-1EE
Q56
BUFF
L;AUDIO CH-1 EE
NR
13-1
L;CH-1 EE
SY
3-5
L;AUDIO CH-2 EE
Q209
BUFF
L;AUDIO CH-1 EE
NR
13-2
L;CH-1 EE
NR
12-10
CH-1 DOLBY SIG (Y)
Q7
MUTE
H;AUDIO MUTE
C151
LV151
BIAS TRAP
CH-1 HEAD (Y)
Q101
Q103
2-2
2-5
H1003 AUDIO CH-1 REC/PB
2-6
DUS-92 (1/3)
DUS-147 (1/3)
2-1
CH-1 HEAD (X)
TP101 TP102
Q105
C102, LV101
INSERT BIAS TRAP
LV101 CH-2 INSERT BIAS TRAP
IC101 (1/2)
CH-1 PB AMP
RV154 CH-1 PB FREQ RESPONSE (15KHz)
RV102 CH-1 PB FREQ RESPONSE (3KHz)
TP103
H. P. F
IC102 (1/2)
CH-1 PB AMP
Q106
H;SEARCH X2
RV103 CH-1 PB FREQ RESPONSE (15KHz)
LV101 PB EQ
RV104 PB LEVEL
H;POWER ON MUTE
Q54
MUTE
IC2 (3/3)
L;AUDIO CH-1 EE
Q8
BUFF
CH-1 DOLBY SIG (X)
12-9
NR
ATT
IC51 (1/2)
HEAD PHONE AMP
Q51
MUTE
H;POWER ON MUTE
Q52
CH-1 METER DRIVER
RV51 METER CARIB
CH-1 METER
7-1
IC3 (1/2)
LINE AMP
RV1 LIMITER LEVEL
Q3-Q5
LIMITER
H;LIMITER OFF
D5
Q6
+11.7V
METER LAMP
7-3
Q501, 502
REG SWITCH
Q503
POWER ON MUTE
4-1
DC
H;POWER ON MUTE
H;AUDIO MUTE
+11.7V
14-3
MONITOR SELECT IN (X)
6-4
Q53
BUFF
AUDIO MONITOR OUT (X)
19-1
CH-1 HEAD PHONE (X)
6-5
CH-1 MONITOR (X)
6-2
CH-1 LINE (X)
10-8
CH-1 DOLBY DET (X)
13-7
NR
FULL ERASE HEAD (X)
1-3
SELECT JUMPER
CP601
FULL ERASE OSC
Q608
REG
+11.7V
RV604 FULL ERASE LEVEL ADJ
TP601
FULL ERASE HEAD (Y)
1-2
Q601
Q602
SELECT JUMPER
L;AUDIO CH-2 REC
L;FULL ERASE
17-7
NR
IC401
IC401
H;AUDIO DUB
5-3
DM-69/72
RY601
H;AUDIO CH-2 REC
RV601 CH-1 BIAS CURRENT ADJ
CP602
BIAS OSC
Q603
REG
L;AUDIO CH-2 REC
+11.7V
RV603 K TAPE BIAS CURRENT ADJ
Q604
Q605
H;SP TAPE
LV602 DUB BIAS F ADJ
RV602 CH-2 BIAS CURRENT ADJ
CH-1 ERASE HEAD (X)
18-1
TP602
TP603
Q607
Q606
L;AUDIO CH-1 REC
LV601 AUDIO ERASE F ADJ
CH-1 ERASE HEAD (Y)
18-2
CH-2 ERASE HEAD (Y)
18-5
CH-2 ERASE HEAD (X)
18-4
VR-80 (3/3)
8-5
8-4
ME1001 AUDIO CH-1
ME1002 AUDIO CH-2
CN1003 AUDIO MONITOR (PIN)
CN1002 AUDIO MONITOR
2-3
CP-136
17-4
S1 (1/2)
17-2
17-1
CH-1/CH-2 MONI SEL SW
S1 (2/2)
17-5
17-6
CH-1/CH-2 HP SELECT SW
12-3
12-2
SW-315A (1/2)
RV1 L HP LEVEL
CN1013 HEADPHONES
RV1 R HP LEVEL
HP-42
2-1
2-2
HN-130
H1002 FULL ERASE
DUS-147 (3/3)
DUS-92 (3/3)
3-6
3-5
3-3
3-2
H1003 CH-1 ERASE
H1003 CH-2 ERASE
(1/3)
CH-2 REC VR (X)
9-6
VR-80 (2/3)
RV2 AUDIO LEVEL CH-2
S1 AUDIO LIMITER SW
8-2
9-5
CH-2 REC VR (Y)
7-4
H;LIMITER OFF
Q252
CH-2 METER DRIVER
RV251 METER CARIB
CH-2 METER
7-2
IC3 (2/2)
LINE AMP
Q251
MUTE
H;POWER ON MUTE
RV201 LIMITER LEVEL
Q201-203
LIMITER
H;LIMITER OFF
D202
Q204
CTL IN (X)
15-1
SV
17-4
NR
L;SERVO LOCK ON
15-3
SV
17-6
NR
H;DOLBY LED ON
16-2
17-2
NR
H;DOLBY SW ON
16-3
17-3
NR
SW-315A (2/2)
18-2
D4
DOLBY LAMP
18-1
S4
DOLBY ON/OFF
NR
12-3
CH-2 DOLBY SIG (Y)
Q206
MUTE
H;AUDIO MUTE
ATT
IC51 (2/2)
HEAD PHONE AMP
Q55
MUTE
H;POWER ON MUTE
CH-2 HEAD POHNE (X)
6-6
CH-2 MONITOR (X)
6-1
CH-2 LINE (X)
10-10
RV301 CROSS TALK CANCEL LEVEL
Q305 R316, C308
CROSS TALK CANCELLER
C351
LV351
BIAS TRAP
CH-2 HEAD (Y)
Q301
Q303
2-5
2-5
H1003 AUDIO CH-2 REC/PB
2-3
DUS-92 (2/3)
DUS-147 (2/3)
2-4
CH-2 HEAD (X)
TP301 TP302
Q304
C304, LV301
INSERT BIAS TRAP
LV301 CH-1 INSERT BIAS TRAP
IC101 (2/2)
CH-2 PB AMP
RV354 CH-2 PB FREQ RESPONSE (15KHz)
RV302 CH-2 PB FREQ RESPONSE (3KHz)
TP303
H. P. F
IC102 (2/2)
CH-2 PB AMP
Q306
H;SEARCH X2
RV303 CH-2 PB FREQ RESPONSE (15KHz)
LV302 PB EQ
RV304 PB LEVEL
IC202 (3/3)
L;AUDIO CH-2 EE
Q207
BUFF
CH-2 DOLBY SIG (X)
12-4
NR
CH-2 DOLBY DET (X)
13-9
NR
2-1
1-3
1-1
IC101
OUTPUT AMP
IC101
OUTPUT AMP
Q1
MUTE
Q2
MUTE
T10
T110
CN1017 CH-1 LINE OUT
CN1018 CH-2 LINE OUT
AA-16 (3/3)
AU-124A
VO-9800 (2)
VO-9800P (2)

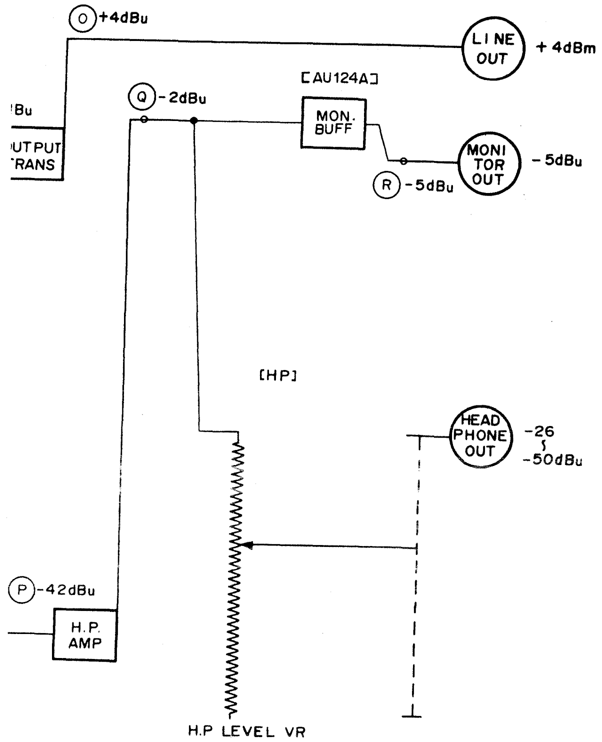
AUDIO LEVEL DIAGRAM

Audio Level Diagram EE, REC

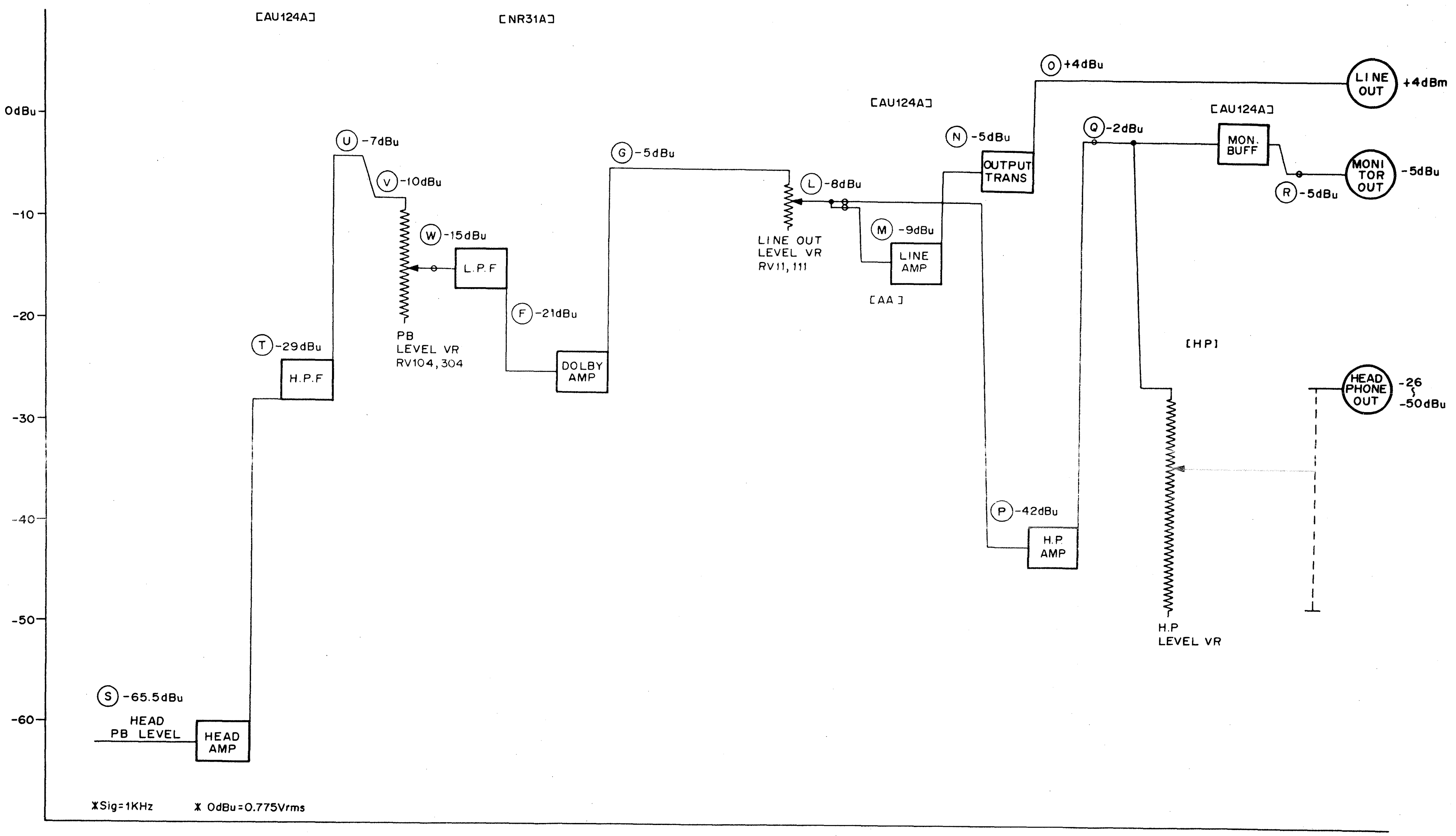

0dBu
-10
-20
-30
-40
-50
-60
[AA]
LINE IN
Ⓐ +4dBm
[MC]
MIC IN
Ⓒ -60dBu
MIC AMP
[AU124A] [MT]
Ⓑ -23dBu
INPUT TRANS
REC VR
Ⓓ -36dBu
LINE AMP
[AU124A]
Ⓔ -9dBu
[NR31A]
LPF
Ⓕ -16dBu
DOLBY AMP
Ⓖ -5dBu
-10dBu
Ⓗ [AU124A]
Ⓘ -20dBu
REC AMP
REC LEVEL VR RV152,352
Ⓙ +4dBu
CON-STANT CUR-RENT
Ⓚ -4dBu
HEAD REC LEVEL
Ⓛ -8dBu
LINE OUT LEVEL VR RV11, 111
Ⓜ -9dBu
LINE AMP
[AA]
[AU124A]
Ⓝ -5dBu
OUTPUT TRANS
Ⓞ +4dBu
LINE OUT
+4dBm
Ⓠ -2dBu
[AU124A]
MON. BUFF
Ⓡ -5dBu
MONI TOR OUT
-5dBu
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
Ⓟ -42dBu
H.P AMP
H.P LEVEL VR
※ Sig=1KHz
※ 0dBu=0.775Vrms

Audio Le


[AU124A]
[NR31A]
0dBu
-10
-20
-30
-40
-50
-60
Ⓢ -65.5dBu
HEAD PB LEVEL
HEAD AMP
Ⓣ -29dBu
H.P.F
Ⓤ -7dBu
Ⓥ -10dBu
PB LEVEL VR RV104,304
Ⓦ -15dBu
L.P.F
Ⓕ -21dBu
DOLBY AMP
Ⓖ
※Sig=1KHz
※ 0dBu=0.775Vrms

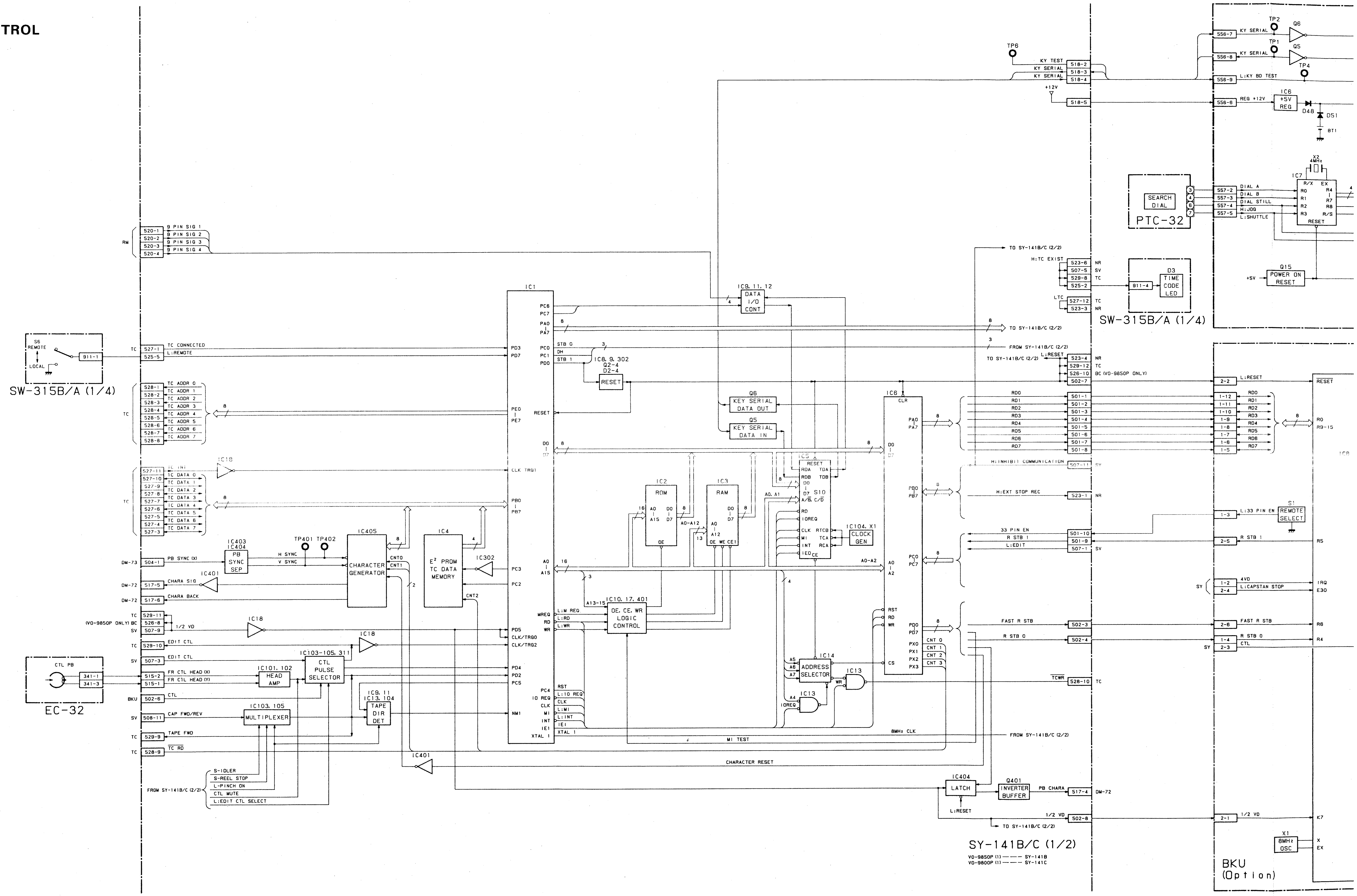

O +4dBu
LINE OUT
+ 4dBm
Bu
UTPUT
TRANS
Q -2dBu
[AU124A]
MON. BUFF
MONI TOR OUT
- 5dBu
R -5dBu
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
P -42dBu
H.P AMP
H.P LEVEL VR

Audio Level Diagram PB

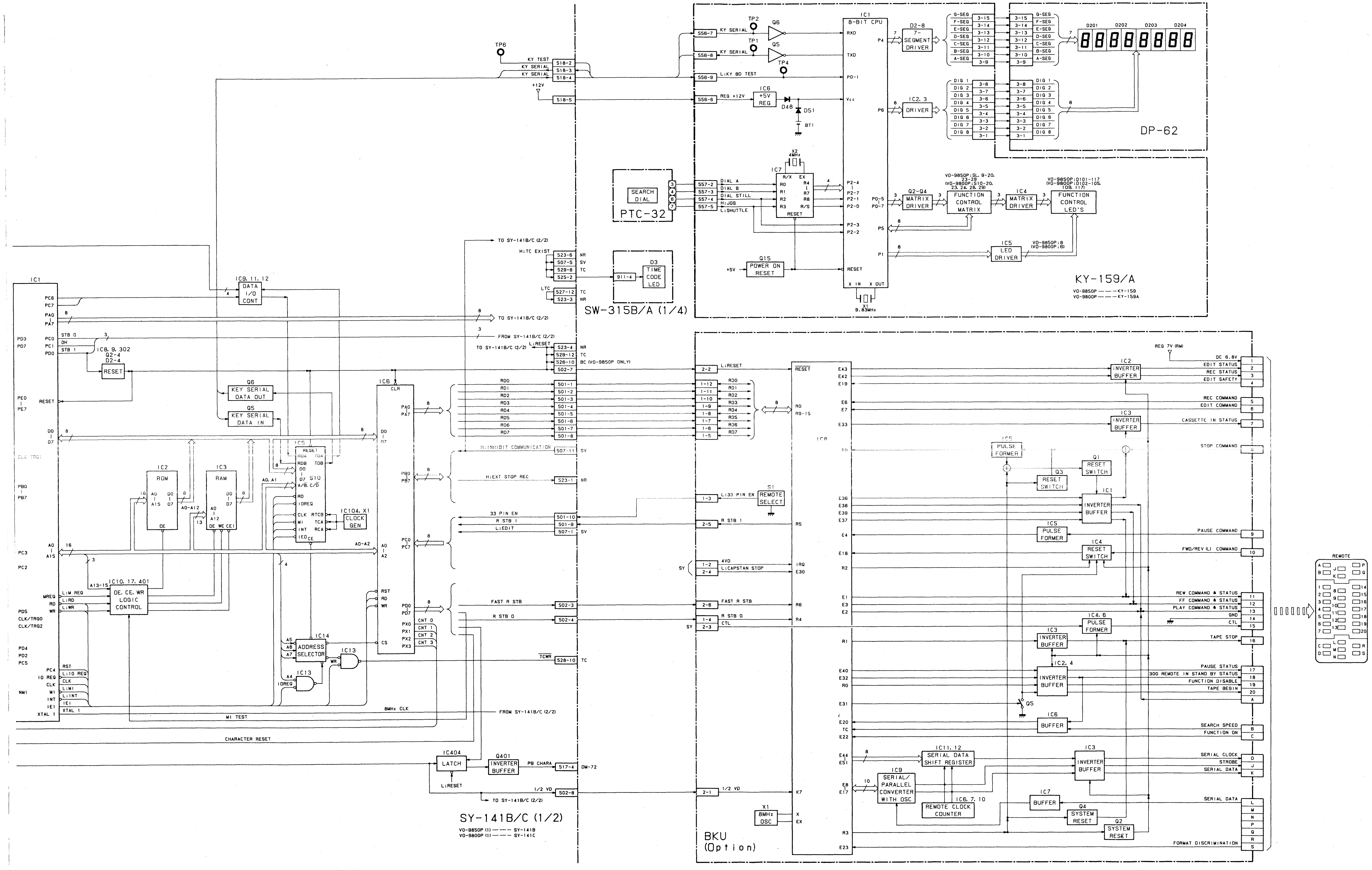

0dBu
-10
-20
-30
-40
-50
-60
[AU124A]
[NR31A]
S -65.5dBu
HEAD PB LEVEL
HEAD AMP
T -29dBu
H.P.F
U -7dBu
V -10dBu
W -15dBu
L.P.F
PB LEVEL VR RV104, 304
F -21dBu
DOLBY AMP
G -5dBu
L -8dBu
LINE OUT LEVEL VR RV11, 111
M -9dBu
LINE AMP
[AA]
[AU124A]
N -5dBu
OUTPUT TRANS
O +4dBu
LINE OUT
+4dBm
Q -2dBu
[AU124A]
MON. BUFF
R -5dBu
MONI TOR OUT
-5dBu
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
P -42dBu
H.P AMP
H.P LEVEL VR

XSig=1KHz X 0dBu=0.775Vrms

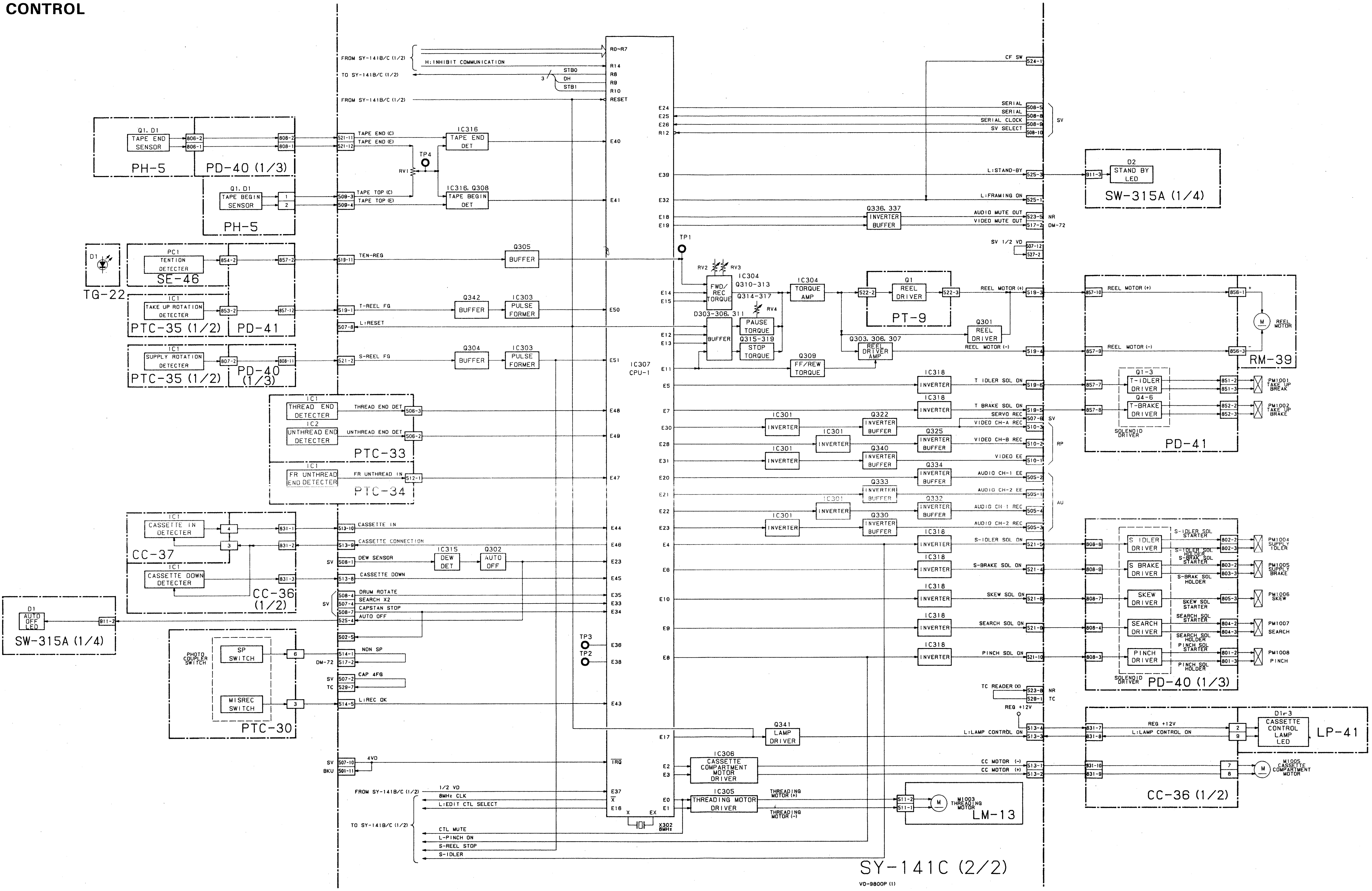
SYSTEM CONTROL



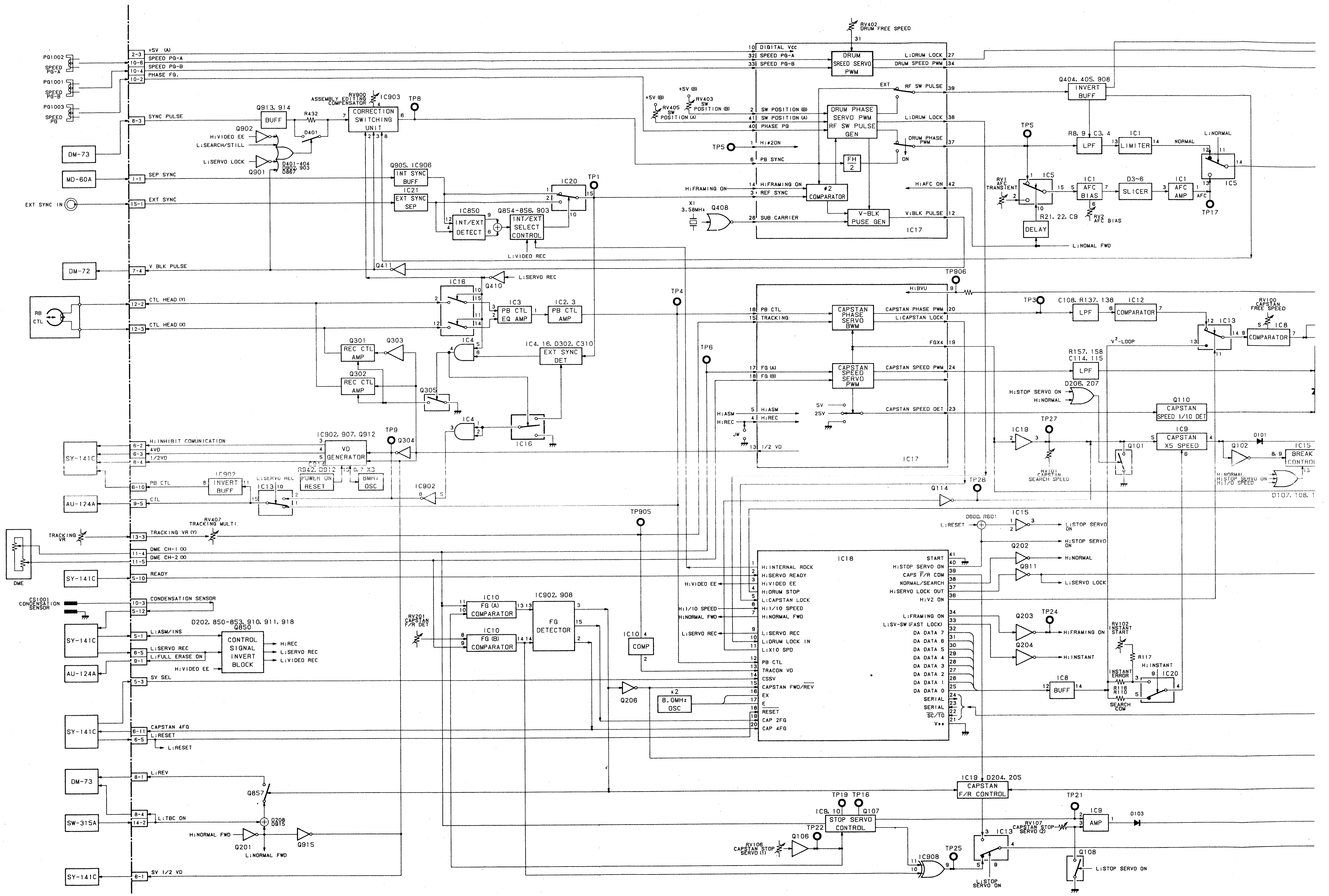
S6
REMOTE
LOCAL
911-1
SW-315B/A (1/4)
RM
S20-1 9 PIN SIG 1
S20-2 9 PIN SIG 2
S20-3 9 PIN SIG 3
S20-4 9 PIN SIG 4
TC
S27-1 TC CONNECTED
S25-5 L:REMOTE
S28-1 TC ADDR 0
S28-2 TC ADDR 1
S28-3 TC ADDR 2
S28-4 TC ADDR 3
S28-5 TC ADDR 4
S28-6 TC ADDR 5
S28-7 TC ADDR 6
S28-8 TC ADDR 7
S27-11 TC INT
S27-10 TC DATA 0
S27-9 TC DATA 1
S27-8 TC DATA 2
S27-7 TC DATA 3
S27-6 TC DATA 4
S27-5 TC DATA 5
S27-4 TC DATA 6
S27-3 TC DATA 7
IC18
DM-73
S04-1 PB SYNC (X)
IC403
IC404
PB SYNC SEP
H SYNC
V SYNC
TP401
TP402
IC405
CHARACTER GENERATOR
CNT0
CNT1
IC4
E² PROM TC DATA MEMORY
CNT2
IC302
DM-72
S17-5 CHARA S10
IC401
S17-6 CHARA BACK
S29-11
(VO-9850P ONLY) BC S26-8
SV S07-9
1/2 VD
S29-10 EDIT CTL
S07-3 EDIT CTL
CTL PB
341-1
341-3
EC-32
S15-2 FR CTL HEAD (X)
S15-1 FR CTL HEAD (Y)
IC101, 102
HEAD AMP
IC103-105, 311
CTL PULSE SELECTOR
BKU
S02-6 CTL
S08-11 CAP FWD/REV
IC103, 105
MULTIPLEXER
IC9, 11
IC13, 104
TAPE DIR DET
S29-9 TAPE FWD
S28-9 TC RD
S-IDLER
S-REEL STOP
L-PINCH ON
CTL MUTE
L:EDIT CTL SELECT
FROM SY-141B/C (2/2)
IC1
PC6
PC7
PA0
PA7
PD3
PD7
PC0
PC1
PD0
STB 0
DH
STB 1
PE0
PE7
RESET
D0
D7
CLK TRG1
PB0
PB7
PC3
PC2
A0
A15
MREQ
RD
WR
PD5
CLK/TRG0
CLK/TRG2
PD4
PD2
PC5
NM1
PC4
IO REQ
CLK
M1
INT
IE1
XTAL 1
L:M REQ
L:RD
L:WR
RST
L:IO REQ
L:M1
L:INT
IE1
IC8, 9, 302
Q2-4
D2-4
RESET
IC9, 11, 12
DATA I/O CONT
Q6
KEY SERIAL DATA OUT
Q5
KEY SERIAL DATA IN
IC2
ROM
A0
A15
D0
D7
OE
A0-A12
IC3
RAM
A12
OE WE CE1
IC5
RESET
RDA TDA
RDB TDB
S10
A/B C/D
IOREQ
CLK RTCB
M1 TCA
INT RCA
IEO CE
A0, A1
IC104, X1
CLOCK GEN
IC10, 17, 401
A13-15
OE, CE, WR LOGIC CONTROL
IC14
A5
A6
A7
ADDRESS SELECTOR
IC13
A4
IOREQ
IC6
CLR
PA0
PA7
PB0
PB7
PC0
PC7
A0
A2
RST
RD
WR
PD0
PD7
CS
PX0
PX1
PX2
PX3
CNT 0
CNT 1
CNT 2
CNT 3
8MHz CLK
M1 TEST
CHARACTER RESET
IC404
LATCH
L:RESET
Q401
INVERTER BUFFER
PB CHARA
S17-4 DM-72
1/2 VD
S02-8
TO SY-141B/C (2/2)
FROM SY-141B/C (2/2)
TP6
KY TEST S18-2
KY SERIAL S18-3
KY SERIAL S18-4
+12V
S18-5
H:TC EXIST
S23-6 NR
S07-5 SV
S29-8 TC
S25-2
LTC
S27-12 TC
S23-3 NR
911-4
D3
TIME CODE LED
SW-315B/A (1/4)
L:RESET
S23-4 NR
S29-12 TC
S26-10 BC (VO-9850P ONLY)
S02-7
RD0 S01-1
RD1 S01-2
RD2 S01-3
RD3 S01-4
RD4 S01-5
RD5 S01-6
RD6 S01-7
RD7 S01-8
H:INHIBIT COMMUNICATION S07-11 SV
H:EXT STOP REC S23-1 NR
33 PIN EN S01-10
R STB 1 S01-9
L:EDIT S07-1 SV
FAST R STB S02-3
R STB 0 S02-4
TCWR S28-10 TC
SY-141B/C (1/2)
VO-9850P (1) ---- SY-141B
VO-9800P (1) ---- SY-141C
TP2
Q6
S56-7 KY SERIAL
TP1
Q5
S56-8 KY SERIAL
TP4
S56-9 L:KY BD TEST
IC6
S56-6 REG +12V
+5V REG
D48
DS1
BT1
X2
4MHz
IC7
R/X EX
SEARCH DIAL
PTC-32
S57-2 DIAL A
S57-3 DIAL B
DIAL STILL
S57-4 H:JOG
S57-5 L:SHUTTLE
R0
R1
R2
R3
R4
R7
R8
R/S
RESET
Q15
+5V
POWER ON RESET
2-2 L:RESET
RESET
1-12 RD0
1-11 RD1
1-10 RD2
1-9 RD3
1-8 RD4
1-7 RD5
1-6 RD6
1-5 RD7
R0
R9-15
IC8
S1
1-3 L:33 PIN EN
REMOTE SELECT
2-5 R STB 1
R5
SY
1-2 4VD
2-4 L:CAPSTAN STOP
IRQ
E30
2-6 FAST R STB
R6
1-4 R STB 0
2-3 CTL
R4
2-1 1/2 VD
K7
X1
8MHz OSC
X
EX
BKU
(Option)

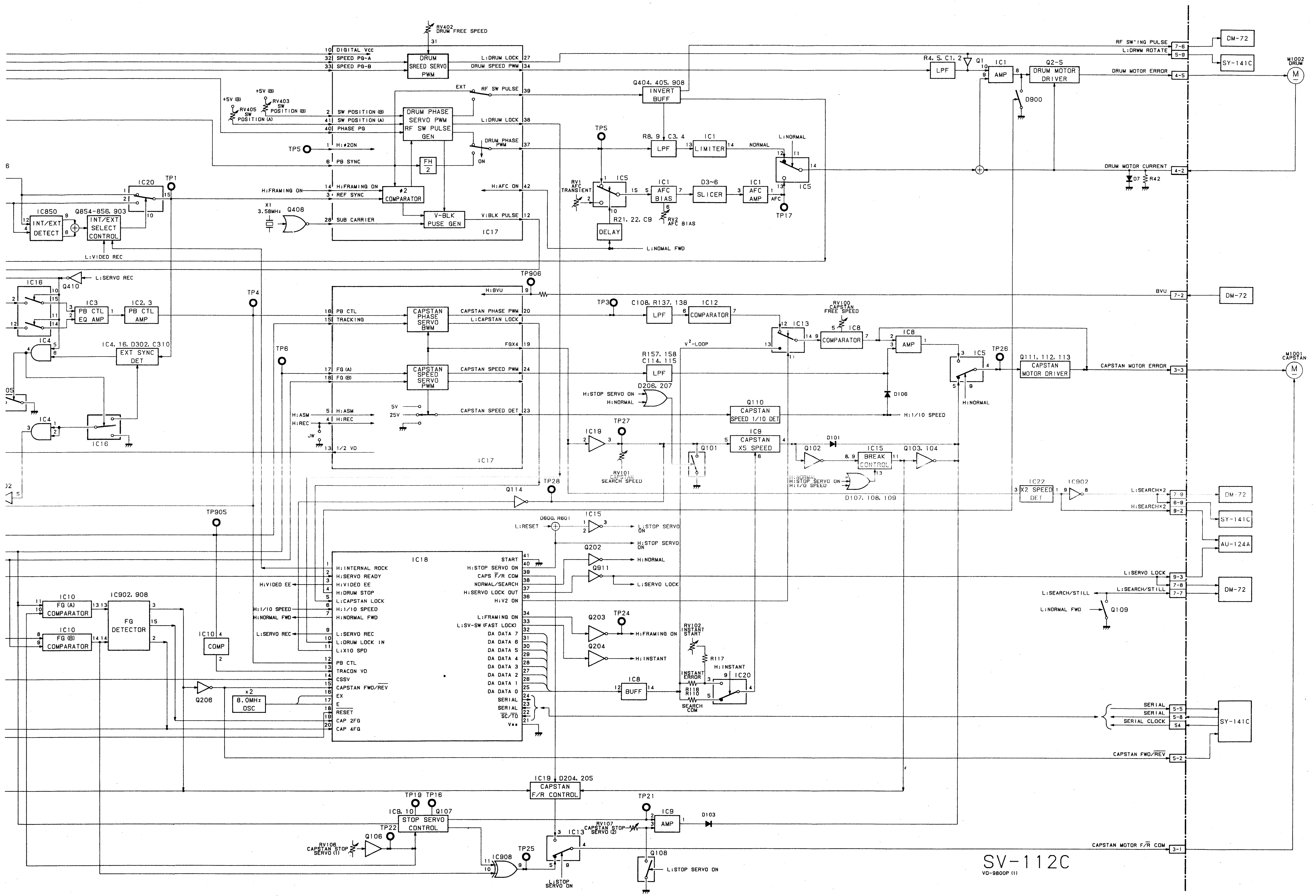

IC1
8-BIT CPU
RXD
TXD
P0-1
Vcc
P4
P6
P2-4
P2-7
P2-1
P2-0
P2-3
P2-2
P0-5
P0-7
P5
P1
RESET
X IN
X OUT
X1
9.83MHz
TP2
TP1
TP4
TP6
Q6
Q5
KY SERIAL
L:KY BD TEST
REG +12V
IC6
+5V REG
D48
D51
BT1
X2
4MHz
IC7
DIAL A
DIAL B
DIAL STILL
H:JOG
L:SHUTTLE
SEARCH DIAL
PTC-32
Q15
POWER ON RESET
+5V
D2-8
7-SEGMENT DRIVER
IC2, 3
DRIVER
G-SEG
F-SEG
E-SEG
D-SEG
C-SEG
B-SEG
A-SEG
DIG 1
DIG 2
DIG 3
DIG 4
DIG 5
DIG 6
DIG 7
DIG 8
D201
D202
D203
D204
DP-62
Q2-Q4
MATRIX DRIVER
FUNCTION CONTROL MATRIX
IC4
MATRIX DRIVER
FUNCTION CONTROL LED'S
IC5
LED DRIVER
VO-9850P:SL. 9-20, 23-29
(VO-9800P:S10-20, 23, 24, 28, 29)
VO-9850P:D101-117
(VO-9800P:D102-105, 109, 117)
VO-9850P:8
(VO-9800P:6)
KY-159/A
VO-9850P ——— KY-159
VO-9800P ——— KY-159A
D3
TIME CODE LED
SW-315B/A (1/4)
H:TC EXIST
LTC
KY TEST
KY SERIAL
+12V
TO SY-141B/C (2/2)
FROM SY-141B/C (2/2)
L:RESET
BC (VO-9850P ONLY)
IC1
PC6
PC7
PA0
PA7
PD3
PD7
PC0
PC1
PD0
STB 0
DH
STB 1
PE0
PE7
RESET
D0
D7
CLK TRG1
PB0
PB7
PC3
PC2
A0
A15
MREQ
RD
WR
PD5
CLK/TRG0
CLK/TRG2
PD4
PD2
PC5
PC4
IO REQ
CLK
M1
INT
IEI
XTAL 1
NMI
RST
L:IO REQ
L:M1
L:INT
IE1
IC8, 9, 302
Q2-4
D2-4
RESET
IC9, 11, 12
DATA I/O CONT
Q6
KEY SERIAL DATA OUT
Q5
KEY SERIAL DATA IN
IC2
ROM
IC3
RAM
A0-A12
IC5
S10
IC104, X1
CLOCK GEN
IC10, 17, 401
OE, CE, WR LOGIC CONTROL
L:M REQ
L:RD
L:WR
A13-15
IC14
ADDRESS SELECTOR
IC13
IC6
CLR
PA0
PA7
PB0
PB7
PC0
PC7
A0
A2
RST
RD
WR
CS
PD0
PD7
PX0
PX1
PX2
PX3
CNT 0
CNT 1
CNT 2
CNT 3
RD0
RD1
RD2
RD3
RD4
RD5
RD6
RD7
H:INHIBIT COMMUNICATION
H:EXT STOP REC
33 PIN EN
R STB 1
L:EDIT
FAST R STB
R STB 0
TCWR
8MHz CLK
MI TEST
CHARACTER RESET
IC404
LATCH
Q401
INVERTER BUFFER
PB CHARA
L:RESET
1/2 VD
DM-72
SY-141B/C (1/2)
VO-9850P (1) ——— SY-141B
VO-9800P (1) ——— SY-141C
NR
SV
TC
BKU
(Option)
IC8
RESET
R0
R9-15
L:30 PIN EN
S1
REMOTE SELECT
R STB 1
4VD
L:CAPSTAN STOP
IRQ
E30
FAST R STB
R STB 0
CTL
SY
X1
8MHz OSC
X
EX
K7
E43
E42
E19
E6
E7
E33
E36
E38
E39
E37
E4
E18
R2
E1
E3
E2
R1
E40
E32
R0
E31
E20
TC
E22
E44
E51
E8
E17
R3
E23
R5
R6
R4
REG 7V (RM)
IC2
INVERTER BUFFER
IC3
INVERTER BUFFER
IC5
PULSE FORMER
Q1
RESET SWITCH
Q3
RESET SWITCH
IC1
INVERTER BUFFER
IC4
RESET SWITCH
IC4, 6
PULSE FORMER
IC2, 4
INVERTER BUFFER
IC6
BUFFER
Q5
IC11, 12
SERIAL DATA SHIFT REGISTER
IC9
SERIAL/PARALLEL CONVERTER WITH OSC
IC6, 7, 10
REMOTE CLOCK COUNTER
IC7
BUFFER
Q4
SYSTEM RESET
Q2
SYSTEM RESET
DC 6.8V
EDIT STATUS
REC STATUS
EDIT SAFETY
REC COMMAND
EDIT COMMAND
CASSETTE IN STATUS
STOP COMMAND
PAUSE COMMAND
FWD/REV (L) COMMAND
REW COMMAND & STATUS
FF COMMAND & STATUS
PLAY COMMAND & STATUS
GND
CTL
TAPE STOP
PAUSE STATUS
300 REMOTE IN STAND BY STATUS
FUNCTION DISABLE
TAPE BEGIN
SEARCH SPEED
FUNCTION ON
SERIAL CLOCK
STROBE
SERIAL DATA
SERIAL DATA
FORMAT DISCRIMINATION
REMOTE

SYSTEM CONTROL


FROM SY-141B/C (1/2)
H:INHIBIT COMMUNICATION
TO SY-141B/C (1/2)
STB0
DH
STB1
RESET
R0~R7
R14
R8
R9
R10
Q1, D1
TAPE END SENSOR
PH-5
PD-40 (1/3)
TAPE END (C)
TAPE END (E)
IC316
TAPE END DET
TP4
RV1
IC316, Q308
TAPE BEGIN DET
TAPE BEGIN SENSOR
TAPE TOP (C)
TAPE TOP (E)
D1
TG-22
PC1
TENTION DETECTER
SE-46
TEN-REG
Q305
BUFFER
IC1
TAKE UP ROTATION DETECTER
PTC-35 (1/2)
PD-41
T-REEL FG
Q342
IC303
PULSE FORMER
L:RESET
SUPPLY ROTATION DETECTER
S-REEL FG
Q304
IC307
CPU-1
THREAD END DETECTER
THREAD END DET
IC2
UNTHREAD END DETECTER
UNTHREAD END DET
PTC-33
FR UNTHREAD END DETECTER
FR UNTHREAD IN
PTC-34
CASSETTE IN DETECTER
CC-37
CASSETTE IN
CASSETTE CONNECTION
CASSETTE DOWN DETECTER
CC-36 (1/2)
CASSETTE DOWN
DEW SENSOR
IC315
DEW DET
Q302
AUTO OFF
DRUM ROTATE
SEARCH X2
CAPSTAN STOP
AUTO OFF LED
SW-315A (1/4)
PHOTO COUPLER SWITCH
SP SWITCH
MISREC SWITCH
PTC-30
NON SP
DM-72
CAP 4FG
SV
TC
L:REC OK
TP3
TP2
4VD
BKU
IRQ
1/2 VD
8MHz CLK
L:EDIT CTL SELECT
CTL MUTE
L-PINCH ON
S-REEL STOP
S-IDLER
X302 8MHz
CF SW
SERIAL
SERIAL CLOCK
SV SELECT
L:STAND-BY
D2
STAND BY LED
L:FRAMING ON
Q336, 337
INVERTER BUFFER
AUDIO MUTE OUT
VIDEO MUTE OUT
NR
SV 1/2 VD
TP1
RV2
RV3
IC304
Q310-313
FWD/REC TORQUE
Q314-317
RV4
TORQUE AMP
D303-306, 311
PAUSE TORQUE
Q315-319
STOP TORQUE
Q309
FF/REW TORQUE
Q1
REEL DRIVER
PT-9
Q301
Q303, 306, 307
REEL DRIVER AMP
REEL MOTOR (+)
REEL MOTOR (-)
M
REEL MOTOR
RM-39
IC318
INVERTER
T IDLER SOL ON
T BRAKE SOL ON
Q1-3
T-IDLER DRIVER
Q4-6
T-BRAKE DRIVER
SOLENOID DRIVER
PM1001 TAKE UP BREAK
PM1002 TAKE UP BRAKE
IC301
Q322
SERVO REC
VIDEO CH-A REC
Q325
VIDEO CH-B REC
Q340
VIDEO EE
RP
Q334
AUDIO CH-1 EE
Q333
AUDIO CH-2 EE
Q332
AUDIO CH 1 REC
Q330
AUDIO CH-2 REC
AU
S-IDLER SOL ON
S IDLER DRIVER
S-IDLER SOL STARTER
S-IDLER SOL HOLDER
PM1004 SUPPLY IDLER
S-BRAKE SOL ON
S BRAKE DRIVER
S-BRAK SOL STARTER
S-BRAK SOL HOLDER
PM1005 SUPPLY BRAKE
SKEW SOL ON
SKEW DRIVER
SKEW SOL STARTER
PM1006 SKEW
SEARCH SOL ON
SEARCH DRIVER
SEARCH SOL STARTER
SEARCH SOL HOLDER
PM1007 SEARCH
PINCH SOL ON
PINCH DRIVER
PINCH SOL STARTER
PINCH SOL HOLDER
PM1008 PINCH
TC READER (X)
REG +12V
Q341
LAMP DRIVER
L:LAMP CONTROL ON
D1-3
CASSETTE CONTROL LAMP LED
LP-41
IC306
CASSETTE COMPARTMENT MOTOR DRIVER
CC MOTOR (-)
CC MOTOR (+)
M1005 CASSETTE COMPARTMENT MOTOR
IC305
THREADING MOTOR DRIVER
THREADING MOTOR (+)
THREADING MOTOR (-)
M1003 THREADING MOTOR
LM-13
SY-141C (2/2)
VO-9800P (1)

SERVO SYSTEM


PG1002
SPEED PG-A
PG1001
SPEED PG-B
PG1003
SPEED PG
DM-73
MD-60A
EXT SYNC IN
DM-72
CTL
DME
SY-141C
AU-124A
TRACKING VR
CS1001 CONDENSATION SENSOR
SW-315A
+5V (A)
SPEED PG-A
SPEED PG-B
PHASE FG.
SYNC PULSE
SEP SYNC
EXT SYNC
V BLK PULSE
CTL HEAD (Y)
CTL HEAD (X)
H:INHIBIT COMUNICATION
4VD
1/2VD
PB CTL
TRACKING VR (Y)
DME CH-1 (X)
DME CH-2 (X)
READY
CONDENSATION SENSOR
L:ASM/INS
L:SERVO REC
L:FULL ERASE ON
SV SEL
CAPSTAN 4FG
L:RESET
L:REV
L:TBC ON
SV 1/2 VD
Q913, 914 BUFF
R432
Q902
H:VIDEO EE
L:SEARCH/STILL
L:SERVO LOCK
Q901
D401
D401-404 D902, 903 D887
RV900 ASSEMBLY EDITING COMPENSATOR
IC903 CORRECTION SWITCHING UNIT
TP8
Q905, IC906 INT SYNC BUFF
IC21 EXT SYNC SEP
IC850 INT/EXT DETECT
Q854-856, 903 INT/EXT SELECT CONTROL
IC20
TP1
L:VIDEO REC
Q411
Q410
L:SERVO REC
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
Q301 REC CTL AMP
Q303
Q302 REC CTL AMP
IC4
IC4, 16, D302, C310 EXT SYNC DET
Q305
IC16
TP9
Q304
IC902, 907, Q912 VD GENERATOR
IC902 INVERT BUFF
IC13
L:SERVO REC
C914 R942, D912 POWER ON RESET
IC4, 7 X3 8MHz OSC
IC902
RV407 TRACKING MULTI
D202, 850-853, 910, 911, 918 Q850 CONTROL SIGNAL INVERT BLOCK
H:REC
L:SERVO REC
L:VIDEO REC
H:VIDEO EE
Q857
D208 D815
H:NORMAL FWD
Q201
Q915
L:NORMAL FWD
RV201 CAPSTAN F/R DET
IC10 FG (A) COMPARATOR
IC10 FG (B) COMPARATOR
IC902, 908 FG DETECTOR
IC10 COMP
TP905
TP4
TP6
Q206
x2 8.0MHz OSC
RV402 DRUM FREE SPEED
DIGITAL Vcc
SPEED PG-A
SPEED PG-B
DRUM SPEED SERVO PWM
L:DRUM LOCK
DRUM SPEED PWM
EXT
RF SW PULSE
RV405 SW POSITION (A)
RV403 SW POSITION (B)
SW POSITION (B)
SW POSITION (A)
PHASE PG
DRUM PHASE SERVO PWM RF SW PULSE GEN
DRUM PHASE PWM
ON
H:#2ON
TP5
PB SYNC
FH 2
H:FRAMING ON
REF SYNC
#2 COMPARATOR
H:AFC ON
X1 3.58MHz
Q408
SUB CARRIER
V-BLK PUSE GEN
V:BLK PULSE
IC17
TP906
H:BVU
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
H:ASM
H:REC
JW
1/2 VD
CAPSTAN SPEED DET
5V
25V
IC17
TP28
Q114
IC18
H:INTERNAL ROCK
H:SERVO READY
H:VIDEO EE
H:DRUM STOP
L:CAPSTAN LOCK
H:1/10 SPEED
H:NORMAL FWD
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
CSSV
CAPSTAN FWD/REV
EX
E
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
H:SERVO LOCK OUT
H:V2 ON
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
SERIAL
SERIAL
SC/TD
Vss
Q404, 405, 908 INVERT BUFF
TP5
R8, 9 C3, 4 LPF
IC1 LIMITER
NORMAL
L:NORMAL
IC5
RV1 AFC TRANSIENT
IC5
IC1 AFC BIAS
D3~6 SLICER
IC1 AFC AMP
AFC
TP17
RV2 AFC BIAS
R21, 22, C9
DELAY
L:NOMAL FWD
TP3
C108, R137, 138 LPF
IC12 COMPARATOR
RV100 CAPSTAN FREE SPEED
IC13
IC8 COMPARATOR
V²-LOOP
R157, 158 C114, 115 LPF
D206, 207
H:STOP SERVO ON
H:NORMAL
Q110 CAPSTAN SPEED 1/10 DET
TP27
IC19
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
D101
Q102
IC15 BREAK CONTROL
H:NORMAL
H:STOP SERVO ON
H:1/D SPEED
D107, 108
D600, R601
L:RESET
IC15
L:STOP SERVO ON
H:STOP SERVO ON
Q202
H:NORMAL
Q911
L:SERVO LOCK
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
RV102 INSTANT START
R117
H:INSTANT
INSTANT ERROR
IC20
IC8 BUFF
R116 R110
SEARCH COM
IC19, D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
IC8, 10 Q107 STOP SERVO CONTROL
TP22
RV106 CAPSTAN STOP SERVO (1)
Q106
IC908
TP25
IC13
L:STOP SERVO ON
RV107 CAPSTAN STOP SERVO (2)
TP21
IC9 AMP
D103
Q108
L:STOP SERVO ON


RV402 DRUM FREE SPEED
DIGITAL Vcc
SPEED PG-A
SPEED PG-B
DRUM SREED SERVO PWM
L:DRUM LOCK
DRUM SPEED PWM
EXT
RF SW PULSE
+5V (B)
RV405 SW POSITION (A)
RV403 SW POSITION (B)
SW POSITION (B)
SW POSITION (A)
PHASE PG
DRUM PHASE SERVO PWM
RF SW PULSE GEN
DRUM PHASE PWM
ON
TP5
H:#20N
PB SYNC
FH/2
IC20
TP1
H:FRAMING ON
H:FRAMING ON
REF SYNC
#2 COMPARATOR
H:AFC ON
X1 3.58MHz
Q408
SUB CARRIER
V-BLK PUSE GEN
V:BLK PULSE
IC17
IC850
INT/EXT DETECT
Q854-856, 903
INT/EXT SELECT CONTROL
L:VIDEO REC
L:SERVO REC
Q410
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
IC4
IC4, 16, D302, C310 EXT SYNC DET
IC4
IC16
TP4
TP6
TP906
H:BVU
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
H:ASM
H:REC
5V
25V
CAPSTAN SPEED DET
JW
1/2 VD
IC17
Q404, 405, 908 INVERT BUFF
TP5
R8, 9 C3, 4 LPF
IC1 LIMITER
NORMAL
L:NORMAL
IC5
RV1 AFC TRANSIENT
IC1 AFC BIAS
D3~6 SLICER
IC1 AFC AMP
AFC
TP17
RV2 AFC BIAS
R21, 22, C9 DELAY
L:NOMAL FWD
RF SW'ING PULSE
L:DRUM ROTATE
R4, 5, C1, 2 LPF
Q1
IC1 AMP
Q2-5 DRUM MOTOR DRIVER
DRUM MOTOR ERROR
Q900
DRUM MOTOR CURRENT
D7
R42
DM-72
SY-141C
M1002 DRUM
M
BVU
DM-72
TP3
C108, R137, 138 LPF
IC12 COMPARATOR
RV100 CAPSTAN FREE SPEED
IC8 COMPARATOR
IC13
IC8 AMP
V²-LOOP
R157, 158 C114, 115 LPF
D206, 207
H:STOP SERVO ON
H:NORMAL
D106
IC5
TP26
Q111, 112, 113 CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR ERROR
H:NORMAL
M1001 CAPSTAN
Q110 CAPSTAN SPEED 1/10 DET
H:1/10 SPEED
IC19
TP27
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
Q102
D101
IC15 BREAK CONTROL
Q103, 104
H:NORMAL
H:STOP SERVO ON
H:1/10 SPEED
D107, 108, 109
IC22 X2 SPEED DET
IC902
L:SEARCH×2
H:SEARCH×2
DM-72
SY-141C
AU-124A
Q114
TP28
TP905
D600, R601
L:RESET
IC15
L:STOP SERVO ON
H:STOP SERVO ON
Q202
H:NORMAL
Q911
L:SERVO LOCK
IC18
H:INTERNAL ROCK
H:SERVO READY
H:VIDEO EE
H:DRUM STOP
L:CAPSTAN LOCK
H:1/10 SPEED
H:NORMAL FWD
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
CSSV
CAPSTAN FWD/REV
EX
E
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
H:SERVO LOCK OUT
H:V2 ON
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
SERIAL
SERIAL
SC/TO
Vss
H:VIDEO EE
H:1/10 SPEED
H:NORMAL FWD
L:SERVO REC
L:SERVO LOCK
L:SEARCH/STILL
L:SEARCH/STILL
L:NORMAL FWD
Q109
DM-72
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
RV102 INSTANT START
R117
H:INSTANT
INSTANT ERROR
R118 R110
SEARCH COM
IC8 BUFF
IC20
IC10 FG (A) COMPARATOR
IC10 FG (B) COMPARATOR
IC902, 908 FG DETECTOR
IC10 COMP
Q206
x2 8.0MHz OSC
SERIAL
SERIAL
SERIAL CLOCK
SY-141C
CAPSTAN FWD/REV
IC19, D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
IC9, 10 Q107 STOP SERVO CONTROL
TP22
Q106
RV106 CAPSTAN STOP SERVO (1)
IC908
TP25
RV107 CAPSTAN STOP SERVO (2)
IC13
L:STOP SERVO ON
TP21
IC9 AMP
D103
Q108
L:STOP SERVO ON
CAPSTAN MOTOR F/R COM
7-6
5-9
4-5
4-2
7-2
3-3
7-9
6-9
9-2
9-3
7-8
7-7
5-5
5-8
54
5-2
3-1
SV-112C
VO-9800P (1)

SECTION 14
SEMICONDUCTOR ELECTRODES

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。)部品の交換をする時は、SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

IC	PAGE
74F11PC	14-3
74F32PC	14-3
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BX1248L	14-3
BX1250L	14-3
BX1251L	14-3
BX1257	14-3
BX1264L	14-3
BX1265L	14-4
BX373AL	14-4
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BX389L	14-4
BX3915A	14-4
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CX194B	14-5
CX20060	14-5
CX20061	14-5
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CX22013	14-7
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CX872	14-7
CXA1020P	14-8
CXD1095Q	14-8
CXL5001P	14-9
CXL5005P	14-9
HD14538BP	14-9
LA4550	14-9
LM2903DQ	14-9
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M5215L	14-10
M54516P	14-10
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MC14013BCP	14-12
MC14538BCP	14-9
MC34051P	14-12
RC2043DD	14-12
RC78L05A	14-12
RC78L09A	14-12
SN16913P	14-12
SN74HC04N	14-12
SN74HC08N	14-12
SN74HC126N	14-12
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SN74HC14N	14-13
SN74HC32N	14-13
SN74HC74N	14-13
TA706DAP	14-13
TC4001UBP	14-13
TC4009UBP	14-13
TC4011BP	14-13
TC4015BP	14-13
TC4016BPHB	14-13
TC4024BP	14-14
TC4030BPHB	14-14
TC4053BP	14-14
TC4053BPHB	14-14
TC4069UBP	14-14
TC4071BP	14-14
TC4081BP	14-14
TC4538BP	14-9
TMPZ84C011AF	14-15
μPC324C	14-14
μPC339C	14-14
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2SD773	14-17
2SD774	14-17
2SD894	14-17
2SD998	14-17
2SK523	14-17
DTA124XS	14-17
DTA143XS	14-17
DTA144ES	14-17
DTC124ES	14-17
DTC124XS	14-17
DTC143TS	14-17
DTC144ES	14-17
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等価回路はICメーカーのData Bookに従いました。
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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1SS99 14-17

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GP-1L53 14-17

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RD??EB? 14-17
RD??ESB? 14-17

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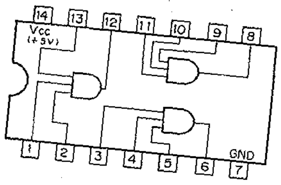
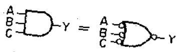
U05E 14-17

74F11PC (FSC)
TTL 3-INPUT POSITIVE-AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
Vcc
(+5V)
1
2
3
4
5
6
GND
7

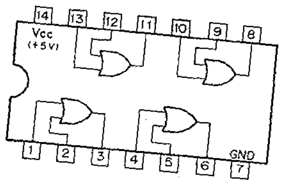


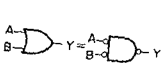
$Y = A \cdot B \cdot C = \overline{\overline{A}+\overline{B}+\overline{C}}$

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

0; LOW LEVEL
1; HIGH LEVEL

74F32PC (FSC)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
Vcc
(+5V)
1
2
3
4
5
6
GND
7

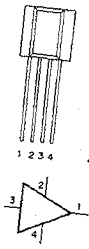


$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

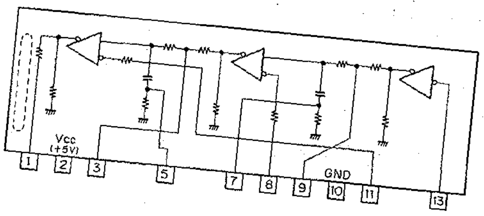
0; LOW LEVEL
1; HIGH LEVEL

AN607P (MATSUSHITA)
AN608P (MATSUSHITA)
WIDE BAND AMPLIFIER
— PRINTED SIDE VIEW —

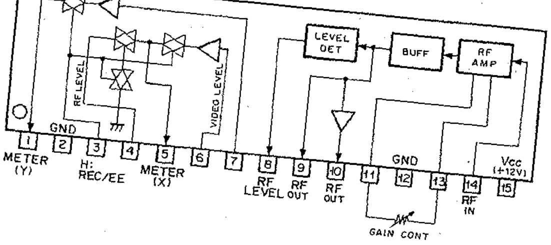


1: OUTPUT
2: Vcc (+12V)
3: INPUT
4: GND

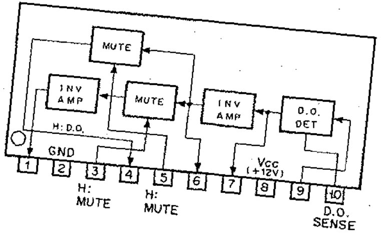
BX1140L (ROHM)
HF AMP
— REAR VIEW —


Vcc
(+5V)
1
2
3
5
7
8
9
GND
10
11
13

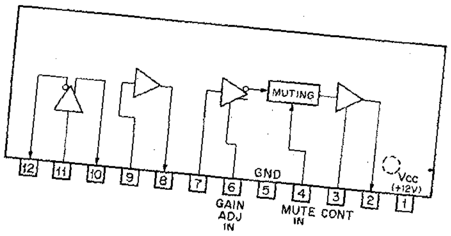
BX1246L (ROHM)
RF AND VIDEO LEVEL METER DRIVER
— PRINTED SIDE VIEW —


RF LEVEL
VIDEO LEVEL
LEVEL DET
BUFF
RF AMP
GND
1
METER (Y)
2
3
H: REC/EE
4
5
METER (X)
6
7
8
RF LEVEL
9
RF OUT
10
RF OUT
11
GND
12
13
14
RF IN
Vcc (+12V)
15
GAIN CONT

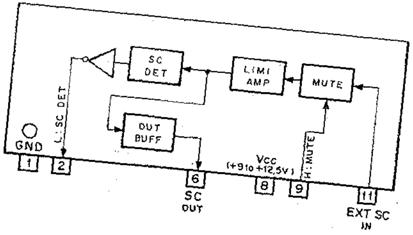
BX1248L (ROHM)
DROPOUT DETECTOR
— PRINTED SIDE VIEW —


MUTE
INV AMP
MUTE
INV AMP
D.O. DET
H: D.O.
GND
1
2
3
H: MUTE
4
5
H: MUTE
6
7
Vcc (+12V)
8
9
10
D.O. SENSE

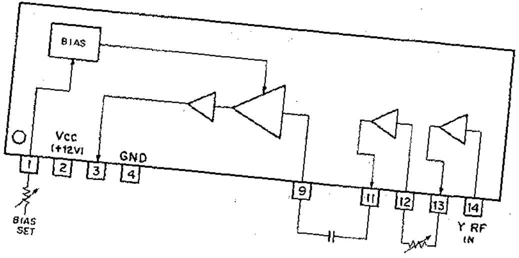
BX1250L (ROHM)
CHROMA OUTPUT AMPLIFIER
— REAR VIEW —


MUTING
12
11
10
9
8
7
6
GAIN ADJ IN
GND
5
4
MUTE IN
3
CONT
2
Vcc (+12V)
1

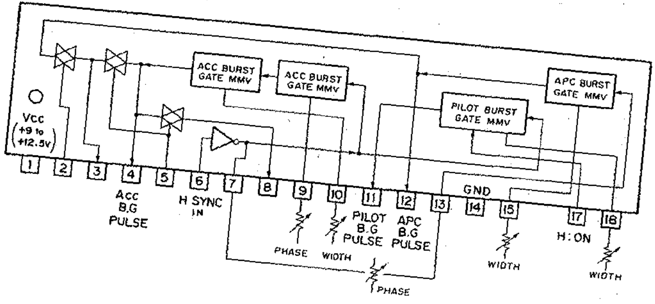
BX1251L (ROHM)
EXTERNAL SUBCARRIER AMPLIFIER
— PRINTED SIDE VIEW —


SC DET
LIMI AMP
MUTE
OUT BUFF
L: SC DET
GND
1
2
6
SC OUT
Vcc (+9 to +12.5V)
8
9
H: MUTE
11
EXT SC IN

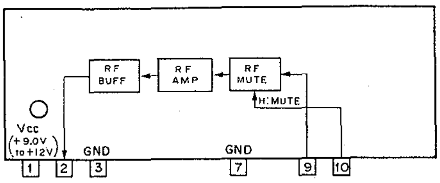
BX1257 (SONY)
Y-RF SIDE BAND EQUALIZER
— PRINTED SIDE VIEW —


BIAS
Vcc (+12V)
1
BIAS SET
2
3
GND
4
9
11
12
13
14
Y RF IN

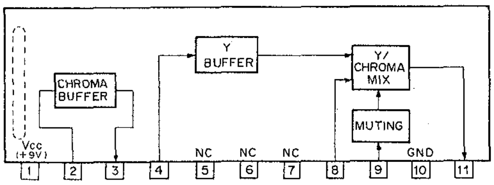
BX1264L (ROHM)
ACC/APC BURST GATE PULSE GENERATOR
— PRINTED SIDE VIEW —


ACC BURST GATE MMV
ACC BURST GATE MMV
APC BURST GATE MMV
PILOT BURST GATE MMV
Vcc (+9 to +12.5V)
1
2
3
4
Acc B.G PULSE
5
6
H SYNC IN
7
8
9
PHASE
10
WIDTH
11
PILOT B.G PULSE
12
APC B.G PULSE
13
GND
14
15
WIDTH
17
H: ON
18
WIDTH
PHASE

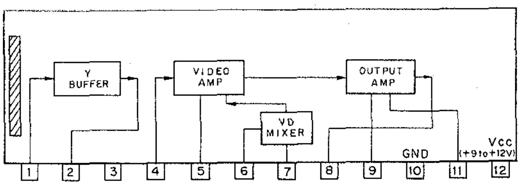
BX1265L (ROHM)
VIDEO HEAD AMPLIFIER/MUTING
— PRINTED SIDE VIEW —


RF BUFF
RF AMP
RF MUTE
H: MUTE
Vcc (+9.0V to +12V)
GND
GND
1
2
3
7
9
10

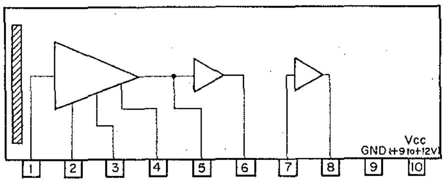
BX373AL (ROHM)
MIX AMP
— REAR VIEW —


Y BUFFER
CHROMA BUFFER
Y/ CHROMA MIX
MUTING
Vcc (+9V)
NC
NC
NC
GND
1
2
3
4
5
6
7
8
9
10
11

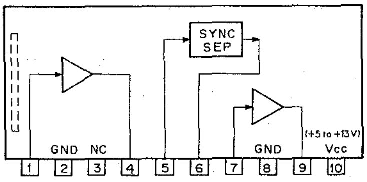
BX388L (ROHM)
VIDEO AMP/VD MIXER
— PRINTED SIDE —


Y BUFFER
VIDEO AMP
OUTPUT AMP
VD MIXER
GND
Vcc (+9 to +12V)
1
2
3
4
5
6
7
8
9
10
11
12

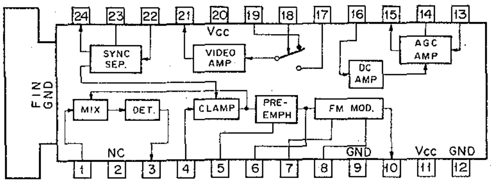
BX389L (ROHM)
VIDEO AMPLIFIER
— PRINTED SIDE —


GND
Vcc (+9 to +12V)
1
2
3
4
5
6
7
8
9
10

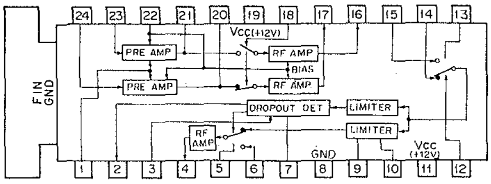
BX3915A (SONY)
SYNC SEPARATOR
— PRINTED SIDE —


SYNC SEP
GND
NC
GND
Vcc
(+5 to +13V)
1
2
3
4
5
6
7
8
9
10

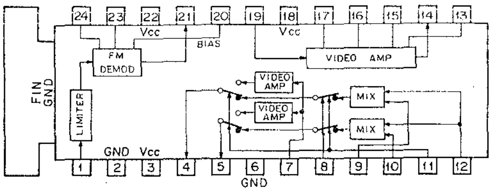
CX131A (SONY)
— TOP VIEW —


FIN GND
SYNC SEP.
VIDEO AMP
AGC AMP
DC AMP
MIX
DET.
CLAMP
PRE-EMPH
FM MOD.
Vcc
NC
GND
Vcc
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

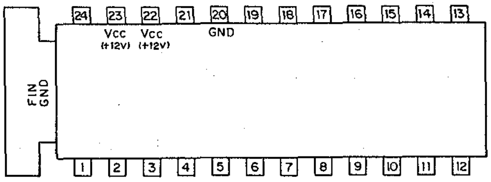
CX134A (SONY)
HEAD AMP/DROPOUT COMPENSATOR
— TOP VIEW —

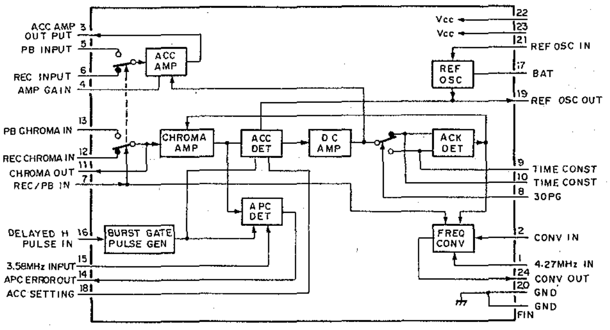

FIN GND
Vcc (+12V)
PRE AMP
RF AMP
BIAS
PRE AMP
RF AMP
DROPOUT DET
LIMITER
LIMITER
RF AMP
GND
Vcc (+12V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CX135 (SONY)
— TOP VIEW —

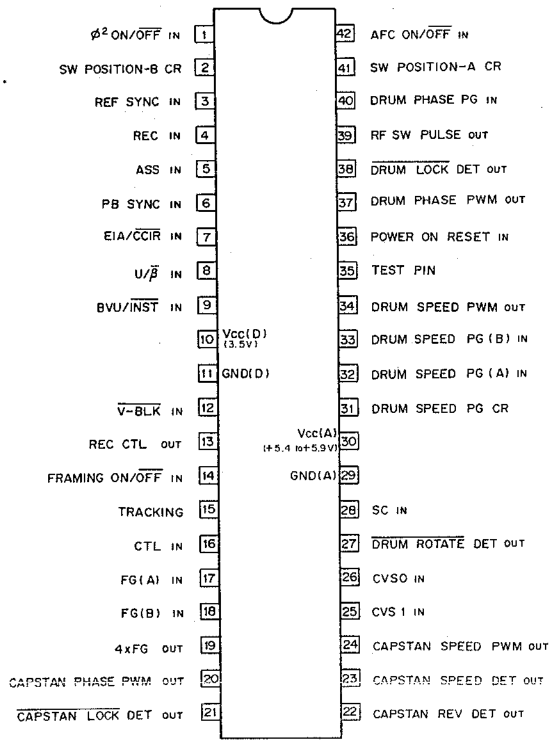

FIN GND
Vcc
BIAS
Vcc
FM DEMOD
VIDEO AMP
VIDEO AMP
VIDEO AMP
MIX
MIX
LIMITER
GND
Vcc
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

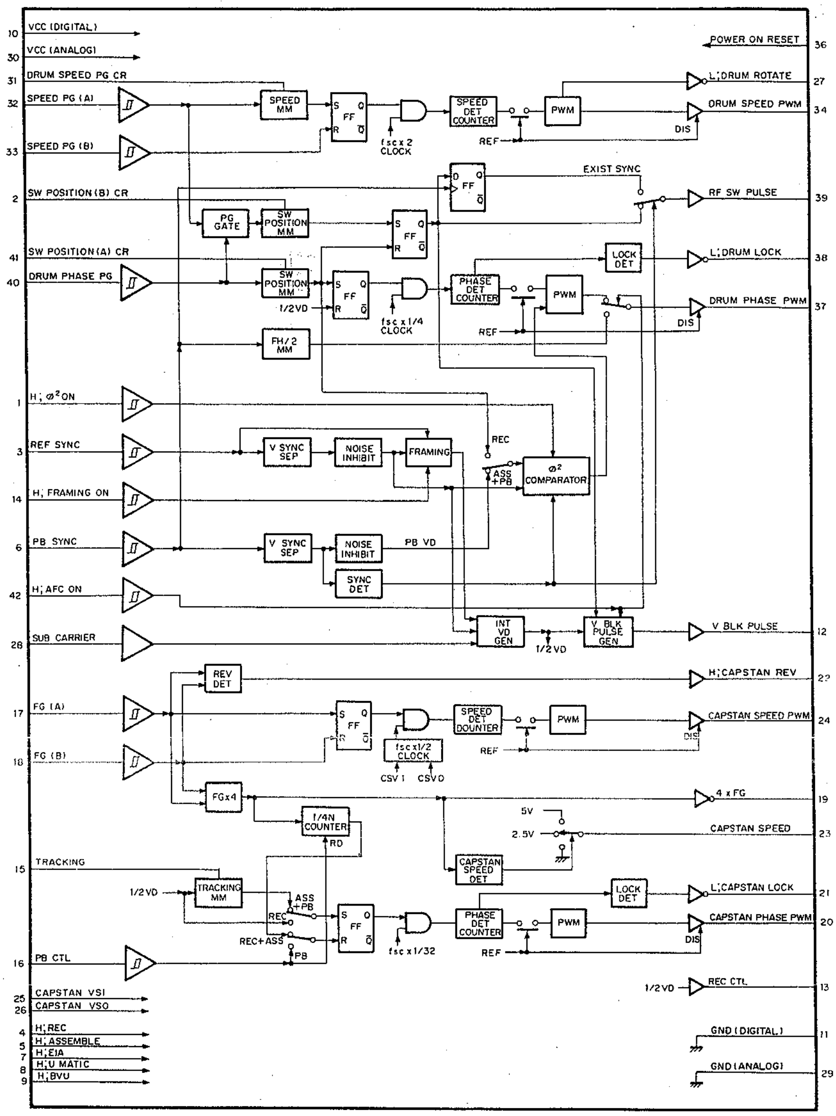
CX188
CHROMINANCE SIGNAL PROCESSER
— TOP VIEW —


FIN GND
Vcc (+12V)
Vcc (+12V)
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

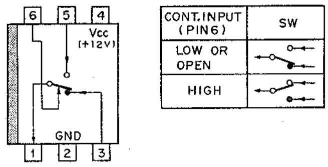

ACC AMP OUT PUT 3
PB INPUT 5
REC INPUT 6
AMP GAIN 4
PB CHROMA IN 13
REC CHROMA IN 12
CHROMA OUT 11
REC/PB IN 7
DELAYED H PULSE IN 16
3.58MHz INPUT 15
APC ERROR OUT 14
ACC SETTING 18
ACC AMP
CHROMA AMP
ACC DET
DC AMP
ACK DET
APC DET
BURST GATE PULSE GEN
REF OSC
FREQ CONV
22
Vcc 23
Vcc
21 REF OSC IN
17 BAT
19 REF OSC OUT
9 TIME CONST
10 TIME CONST
8 30PG
2 CONV IN
1 4.27MHz IN
24 CONV OUT
20 GND
GND
FIN

CX194B (SONY)
DRUM/CAPSTAN PWM SERVO
— TOP VIEW —

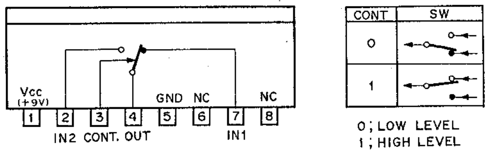

φ² ON/OFF IN 1
SW POSITION-B CR 2
REF SYNC IN 3
REC IN 4
ASS IN 5
PB SYNC IN 6
EIA/CCIR IN 7
U/β IN 8
BVU/INST IN 9
10 Vcc(D) (3.5V)
11 GND(D)
V-BLK IN 12
REC CTL OUT 13
FRAMING ON/OFF IN 14
TRACKING 15
CTL IN 16
FG(A) IN 17
FG(B) IN 18
4xFG OUT 19
CAPSTAN PHASE PWM OUT 20
CAPSTAN LOCK DET OUT 21
42 AFC ON/OFF IN
41 SW POSITION-A CR
40 DRUM PHASE PG IN
39 RF SW PULSE OUT
38 DRUM LOCK DET OUT
37 DRUM PHASE PWM OUT
36 POWER ON RESET IN
35 TEST PIN
34 DRUM SPEED PWM OUT
33 DRUM SPEED PG (B) IN
32 DRUM SPEED PG (A) IN
31 DRUM SPEED PG CR
Vcc(A) (+5.4 to+5.9V) 30
GND(A) 29
28 SC IN
27 DRUM ROTATE DET OUT
26 CVSO IN
25 CVS 1 IN
24 CAPSTAN SPEED PWM OUT
23 CAPSTAN SPEED DET OUT
22 CAPSTAN REV DET OUT


VCC (DIGITAL)
VCC (ANALOG)
DRUM SPEED PG CR
SPEED PG (A)
SPEED PG (B)
SW POSITION (B) CR
SW POSITION (A) CR
DRUM PHASE PG
H; φ²ON
REF SYNC
H; FRAMING ON
PB SYNC
H; AFC ON
SUB CARRIER
FG (A)
FG (B)
TRACKING
PB CTL
CAPSTAN VSI
CAPSTAN VSO
H; REC
H; ASSEMBLE
H; EIA
H; U MATIC
H; BVU
POWER ON RESET
L; DRUM ROTATE
DRUM SPEED PWM
RF SW PULSE
L; DRUM LOCK
DRUM PHASE PWM
V BLK PULSE
H; CAPSTAN REV
CAPSTAN SPEED PWM
4 x FG
CAPSTAN SPEED
L; CAPSTAN LOCK
CAPSTAN PHASE PWM
REC CTL
GND (DIGITAL)
GND (ANALOG)
SPEED MM
FF
SPEED DET COUNTER
PWM
fsc x 2 CLOCK
REF
DIS
EXIST SYNC
PG GATE
SW POSITION MM
LOCK DET
PHASE DET COUNTER
1/2VD
fsc x 1/4 CLOCK
FH/2 MM
V SYNC SEP
NOISE INHIBIT
FRAMING
REC
ASS +PB
φ² COMPARATOR
PB VD
SYNC DET
INT VD GEN
V BLK PULSE GEN
REV DET
fsc x 1/2 CLOCK
CSV I
CSVO
FGx4
1/4N COUNTER
RD
5V
2.5V
CAPSTAN SPEED DET
TRACKING MM
REC+ASS
PB
fsc x 1/32
1 2 3 4 5 6 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 36 37 38 39 40 41 42

CX20060 (SONY)
ANALOG SWITCH
— TOP VIEW —


6 5 4
Vcc (+12V)
GND
1 2 3
CONT. INPUT (PIN6)
SW
LOW OR OPEN
HIGH

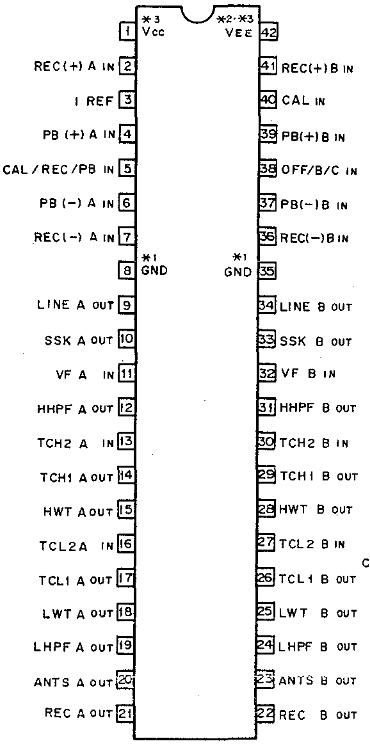
CX20061 (SONY)
ANALOG SWITCH
— SIDE VIEW —

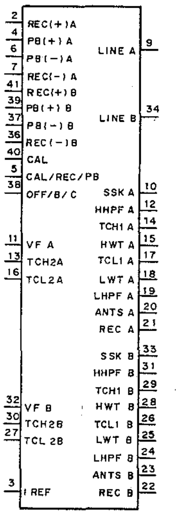

Vcc (+9V)
GND
NC
NC
1 2 3 4 5 6 7 8
IN2 CONT. OUT
IN1
CONT
SW
0
1

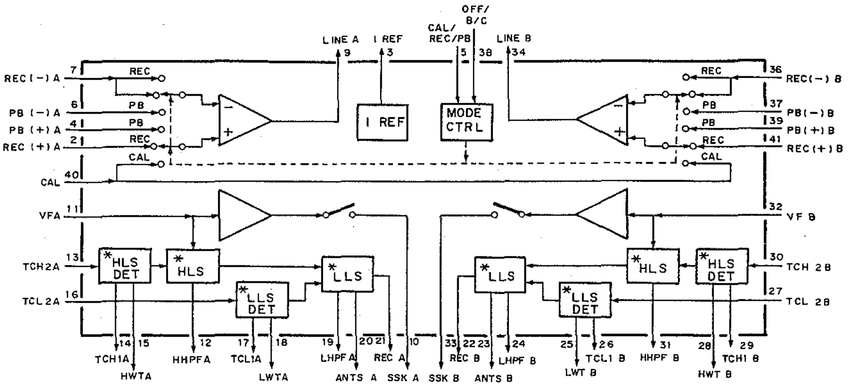
0 ; LOW LEVEL
1 ; HIGH LEVEL

CX20188 (SONY)

DOLBY B TYPE AND C TYPE, NOISE REDUCTION SYSTEM
— TOP VIEW —


*3 Vcc 1
*2·*3 VEE 42
REC(+) A IN 2
41 REC(+)B IN
I REF 3
40 CAL IN
PB (+) A IN 4
39 PB(+)B IN
CAL/REC/PB IN 5
38 OFF/B/C IN
PB (−) A IN 6
37 PB(−)B IN
REC(−) A IN 7
36 REC(−)B IN
*1 GND 8
*1 GND 35
LINE A OUT 9
34 LINE B OUT
SSK A OUT 10
33 SSK B OUT
VF A IN 11
32 VF B IN
HHPF A OUT 12
31 HHPF B OUT
TCH2 A IN 13
30 TCH2 B IN
TCH1 A OUT 14
29 TCH1 B OUT
HWT A OUT 15
28 HWT B OUT
TCL2A IN 16
27 TCL2 B IN
TCL1 A OUT 17
26 TCL1 B OUT
LWT A OUT 18
25 LWT B OUT
LHPF A OUT 19
24 LHPF B OUT
ANTS A OUT 20
23 ANTS B OUT
REC A OUT 21
22 REC B OUT


2 REC(+)A
4 PB(+)A
6 PB(−)A
7 REC(−)A
41 REC(+)B
39 PB(+)B
37 PB(−)B
36 REC(−)B
40 CAL
5 CAL/REC/PB
38 OFF/B/C
LINE A 9
LINE B 34
SSK A 10
HHPF A 12
TCH1 A 14
11 VF A
HWT A 15
13 TCH2A
TCL1 A 17
16 TCL2A
LWT A 18
LHPF A 19
ANTS A 20
REC A 21
SSK B 33
HHPF B 31
TCH1 B 29
32 VF B
HWT B 28
30 TCH2B
TCL1 B 26
27 TCL 2B
LWT B 25
LHPF B 24
ANTS B 23
3 I REF
REC B 22

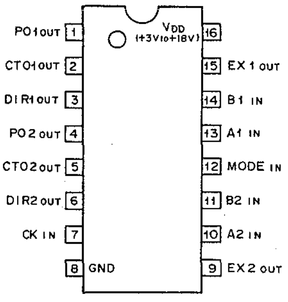

OFF/B/C
CAL/REC/PB
LINE A
I REF
LINE B
9
3
5
38
34
REC(−)A 7
REC
PB(−)A 6
PB(+)A 4
REC(+)A 2
PB
PB
REC
CAL
CAL 40
I REF
MODE CTRL
REC(−)B 36
PB(−)B 37
PB(+)B 39
REC(+)B 41
VFA 11
VF B 32
TCH2A 13
TCL2A 16
TCH 2B 30
TCL 2B 27
*HLS DET
*HLS
*LLS DET
*LLS
14 15 12 17 18 19 20 21 10 33 22 23 24 25 26 31 28 29
TCH1A
HWTA
HHPFA
TCL1A
LWTA
LHPF A
REC A
ANTS A
SSK A
SSK B
REC B
ANTS B
LHPF B
TCL1 B
LWT B
HHPF B
TCH1 B
HWT B

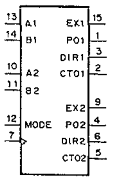
ANTS	;ANTI SATURATION
CAL	; CALIBRATION
CAL/REC/PB	; CALIBRATION/REC/ PB SELECT
HHPF	; *HLS HIGH PASS FILTER
HWT	; *HLS WAITING
I REF	; REFERENCE SOURCE CURRENT
LHPF	; *LLS HIGH PASS FILTER
LWT	; *LLS WAITING
OFF/B/C	; DOLBY NR OFF/B-TYPE/C-TYPE SELECT
SSK	; SPECTRAL SKEWING SWITCH
TCH	; *HLS DETECTOR TIME CONSTANT
TCL	; *LLS DETECTOR TIME CONSTANT
VF	; ENCODE INPUT
*HLS	; HIGH LEVEL STAGE
*LLS	; LOW LEVEL STAGE

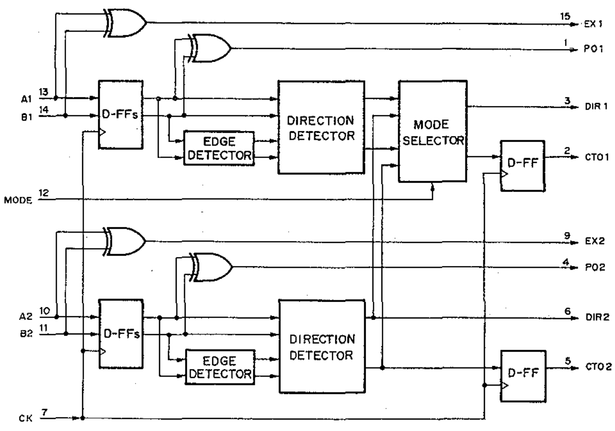
*1 ; ONE POWER → Vcc/2. TWO POWER → GND
*2 ; ONE POWER → GND. TWO POWER → VEE
*3 ; Vcc − VEE : +8 to +21V

CX23028 (SONY)

C-MOS SYNCHRONOUS ROTATIONAL DIRECTION DETECTOR
— TOP VIEW —


PO1 OUT 1
CTO1 OUT 2
DIR1 OUT 3
PO2 OUT 4
CTO2 OUT 5
DIR2 OUT 6
CK IN 7
8 GND
VDD (+3V to +18V) 16
15 EX 1 OUT
14 B1 IN
13 A1 IN
12 MODE IN
11 B2 IN
10 A2 IN
9 EX2 OUT


13 A1
14 B1
10 A2
11 B2
12 MODE
7
EX1 15
PO1 1
DIR1 3
CTO1 2
EX2 9
PO2 4
DIR2 6
CTO2 5


15 EX1
1 PO1
A1 13
B1 14
D-FFs
EDGE DETECTOR
DIRECTION DETECTOR
MODE SELECTOR
D-FF
3 DIR1
2 CTO1
MODE 12
9 EX2
4 PO2
A2 10
B2 11
D-FFs
EDGE DETECTOR
DIRECTION DETECTOR
D-FF
6 DIR2
5 CTO2
CK 7

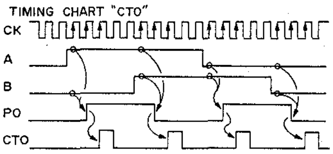
A, B	; SIGNAL INPUTS
EX	; A⊕B
PO	; A⊕B (SYNCHRONOUS)
DIR	; DIRECTION OUTPUT
CTO	; COUNT PULSE OUTPUT
MODE	; DIR1 & CTO1 MODE SELECT
⊕	; EXCLUSIVE-OR

MODE = "1"

DIRECTION OUTPUT "DIR"

INPUTS	DIR
A∠B	1
B∠A	0

TIMING CHART "CTO"



MODE = "0"

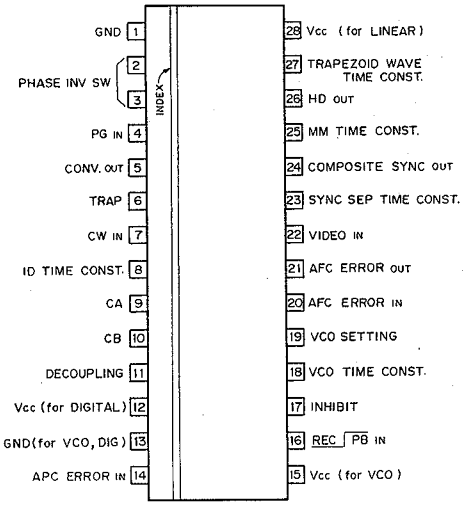
DIRECTION OUTPUT "DIR"

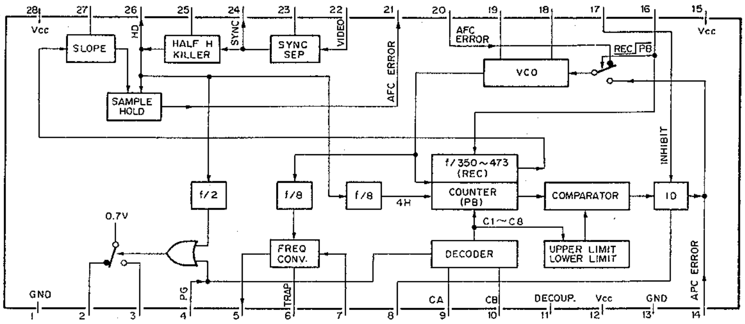
INPUTS		DIR 1	DIR 2
CH1	CH2		
A1∠B1	A2∠B2	1	THE SAME FUNCTION OF MODE "1"
B1∠A1	A2∠B2	OUTPUT "1" AND "0" ALTERNATELY	
A1∠B1	B2∠A2		
B1∠A1	B2∠A2	0	

CTO 1 ; CTO 1 with MODE "0" = CTO 1 with MODE "1" + CTO 2
CTO 2 ; THE SAME FUNCTION OF MODE "1"

1 ; HIGH LEVEL
0 ; LOW LEVEL
A∠B ; THE PHASE OF SIGNAL A IS IN ADVANCE FOR THE PHASE OF B.

CX 859 (SONY)
–TOP VIEW–


GND 1
PHASE INV SW 2 3
PG IN 4
CONV. OUT 5
TRAP 6
CW IN 7
ID TIME CONST. 8
CA 9
CB 10
DECOUPLING 11
Vcc (for DIGITAL) 12
GND (for VCO, DIG) 13
APC ERROR IN 14
INDEX
28 Vcc (for LINEAR)
27 TRAPEZOID WAVE TIME CONST.
26 HD OUT
25 MM TIME CONST.
24 COMPOSITE SYNC OUT
23 SYNC SEP TIME CONST.
22 VIDEO IN
21 AFC ERROR OUT
20 AFC ERROR IN
19 VCO SETTING
18 VCO TIME CONST.
17 INHIBIT
16 REC / PB IN
15 Vcc (for VCO)


Vcc
SLOPE
HD
HALF H KILLER
SYNC
SYNC SEP
VIDEO
AFC ERROR
AFC ERROR
VCO
REC PB
Vcc
SAMPLE HOLD
INHIBIT
f/350~473 (REC)
COUNTER (PB)
COMPARATOR
10
f/2
f/8
f/8
4H
C1~C8
0.7V
FREQ CONV.
DECODER
UPPER LIMIT LOWER LIMIT
APC ERROR
GND
PG
TRAP
CA
CB
DECOUP.
Vcc
GND
28 27 26 25 24 23 22 21 20 19 18 17 16 15
1 2 3 4 5 6 7 8 9 10 11 12 13 14

DECODER TRUTH TABLE

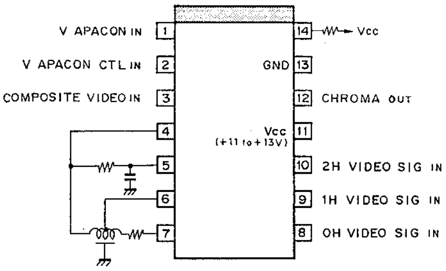
CB / CA	LOW	OPEN	HIGH
LOW	C1	C7	—
OPEN	C4	C5	C6
HIGH	—	*C2 C3	C8

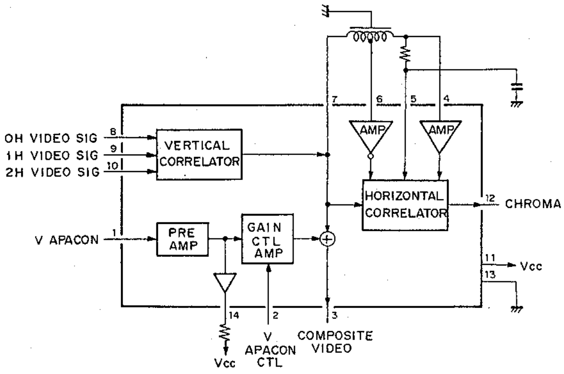
* PG : L --- C2
PG : H --- C3

AFC/APC PRESET DATA

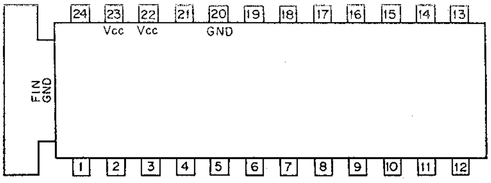
	AFC COUNT DOWN	APC ID COUNT	
		UPPER LIM.	LOWER LIM.
C1	f/473	105	95
C2	f/351	129	119
C3	f/353	137	127
C4	f/351	118	104
C5	f/351	131	117
C6	f/351	144	130
C7	f/350	136	104
C8	——	125	115

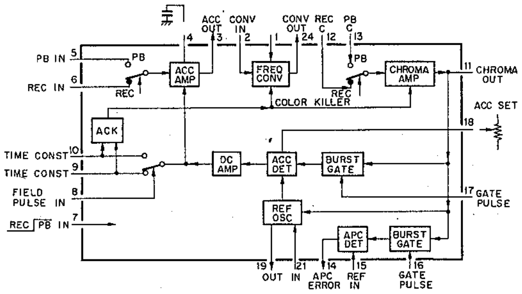
CX22013 (SONY)
DYNAMIC COMB FILTER
— TOP VIEW —


V APACON IN 1
V APACON CTL IN 2
COMPOSITE VIDEO IN 3
4
5
6
7
14 Vcc
GND 13
12 CHROMA OUT
Vcc (+11 to +13V) 11
10 2H VIDEO SIG IN
9 1H VIDEO SIG IN
8 OH VIDEO SIG IN

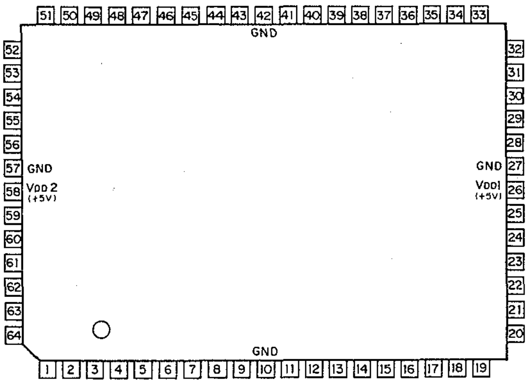

OH VIDEO SIG 8
1H VIDEO SIG 9
2H VIDEO SIG 10
VERTICAL CORRELATOR
AMP
AMP
HORIZONTAL CORRELATOR
12 CHROMA
V APACON 1
PRE AMP
GAIN CTL AMP
11 Vcc
13
7 6 5 4
14
Vcc
2 V APACON CTL
3 COMPOSITE VIDEO

CX872 (SONY)
— TOP VIEW —

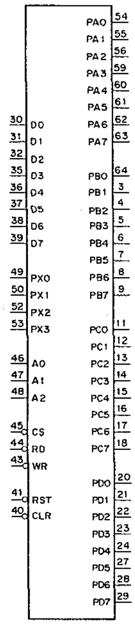

24 23 22 21 20 19 18 17 16 15 14 13
Vcc Vcc GND
FIN GND
1 2 3 4 5 6 7 8 9 10 11 12


ACC OUT 4
CONV IN 3
2
CONV OUT 1
REC C 24
PB C 12
13
PB IN 5
PB
REC IN 6
REC
ACC AMP
FREQ CONV
PB
REC
CHROMA AMP
11 CHROMA OUT
COLOR KILLER
ACC SET 18
ACK
TIME CONST 10
TIME CONST 9
DC AMP
ACC DET
BURST GATE
FIELD PULSE IN 8
17 GATE PULSE
REC / PB IN 7
REF OSC
APC DET
BURST GATE
19 OUT
21 IN
14 APC ERROR
15 REF IN
16 GATE PULSE

CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —


51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
GND
52 53 54 55 56 57 58 59 60 61 62 63 64
32 31 30 29 28 27 26 25 24 23 22 21 20
GND
GND
VDD 2 (+5V)
VDD1 (+5V)
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

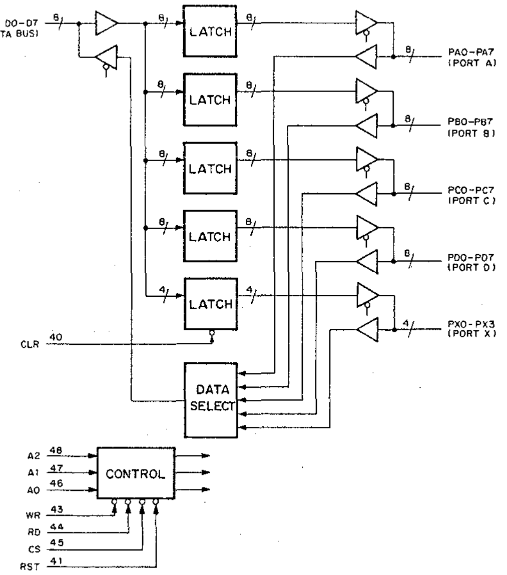
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	○	○	PC6	33			NC	49	○	○	PX0
2			NC	18	○	○	PC7	34			NC	50	○	○	PX1
3	○	○	PB1	19			NC	35	○	○	D3	51			NC
4	○	○	PB2	20	○	○	PD0	36	○	○	D4	52	○	○	PX2
5	○	○	PB3	21	○	○	PD1	37	○	○	D5	53	○	○	PX3
6	○	○	PB4	22	○	○	PD2	38	○	○	D6	54	○	○	PA0
7	○	○	PB5	23	○	○	PD3	39	○	○	D7	55	○	○	PA1
8	○	○	PB6	24	○	○	PD4	40	○		CLR	56	○	○	PA2
9	○	○	PB7	25			GND	41	○		RST	57			GND
10			GND	26	○		VDD(+5V)	42			GND	58	○		VDD(+5V)
11	○	○	PC0	27	○	○	PD5	43	○		WR	59	○	○	PA3
12	○	○	PC1	28	○	○	PD6	44	○		RD	60	○	○	PA4
13	○	○	PC2	29	○	○	PD7	45	○		CS	61	○	○	PA5
14	○	○	PC3	30	○	○	D0	46	○		A0	62	○	○	PA6
15	○	○	PC4	31	○	○	D1	47	○		A1	63	○	○	PA7
16	○	○	PC5	32	○	○	D2	48	○		A2	64	○	○	PB0


30 D0
31 D1
32 D2
35 D3
36 D4
37 D5
38 D6
39 D7
49 PX0
50 PX1
52 PX2
53 PX3
46 A0
47 A1
48 A2
45 CS
44 RD
43 WR
41 RST
40 CLR
PA0 54
PA1 55
PA2 56
PA3 59
PA4 60
PA5 61
PA6 62
PA7 63
PB0 64
PB1 3
PB2 4
PB3 5
PB4 6
PB5 7
PB6 8
PB7 9
PC0 11
PC1 12
PC2 13
PC3 14
PC4 15
PC5 16
PC6 17
PC7 18
PD0 20
PD1 21
PD2 22
PD3 23
PD4 24
PD5 27
PD6 28
PD7 29

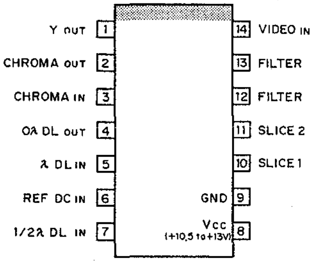
CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A→DATA BUS
0	0	1	0	0	1	PORT B→DATA BUS
0	0	1	0	1	0	PORT C→DATA BUS
0	0	1	0	1	1	PORT D→DATA BUS
0	0	1	1	0	0	PORT X→DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS→PORT A
0	1	0	0	0	1	DATA BUS→PORT B
0	1	0	0	1	0	DATA BUS→PORT C
0	1	0	0	1	1	DATA BUS→PORT D
0	1	0	1	0	0	DATA BUS→PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS→CTL REG.1
0	1	0	1	1	1	DATA BUS→CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

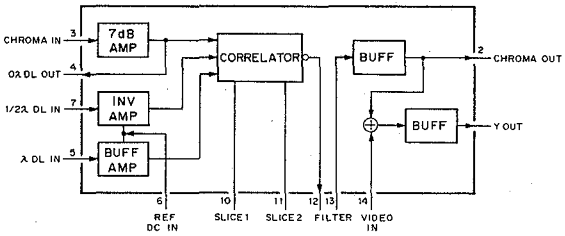
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z, HIGH IMPEDANCE

D0-D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0-A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0-PA7 ; PORT A INPUTS/OUTPUTS
PB0-PB7 ; PORT B INPUTS/OUTPUTS
PC0-PC7 ; PORT C INPUTS/OUTPUTS
PD0-PD7 ; PORT D INPUTS/OUTPUTS
PX0-PX3 ; PORT X INPUTS/OUTPUTS

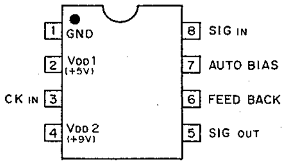

D0-D7 (DATA BUS)
8
LATCH
LATCH
LATCH
LATCH
LATCH
4
PA0-PA7 (PORT A)
PB0-PB7 (PORT B)
PC0-PC7 (PORT C)
PD0-PD7 (PORT D)
PX0-PX3 (PORT X)
CLR 40
DATA SELECT
A2 48
A1 47
A0 46
CONTROL
WR 43
RD 44
CS 45
RST 41

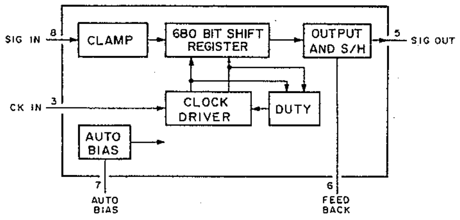
CXA1020P (SONY)
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR
— TOP VIEW —


Y OUT 1
CHROMA OUT 2
CHROMA IN 3
0λ DL OUT 4
λ DL IN 5
REF DC IN 6
1/2λ DL IN 7
14 VIDEO IN
13 FILTER
12 FILTER
11 SLICE 2
10 SLICE 1
GND 9
Vcc (+10.5 to +13V) 8

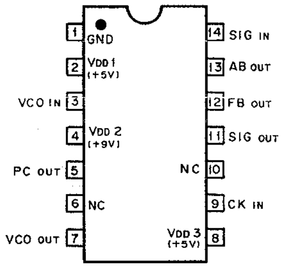

CHROMA IN 3
0λ DL OUT 4
1/2λ DL IN 7
λ DL IN 5
7dB AMP
INV AMP
BUFF AMP
CORRELATOR
BUFF
BUFF
2 CHROMA OUT
Y OUT
6 REF DC IN
10 SLICE 1
11 SLICE 2
12 13 FILTER
14 VIDEO IN

CXL5001P (SONY)
C-MOS CCD FOR NTSC 1H DELAY LINE
— TOP VIEW —

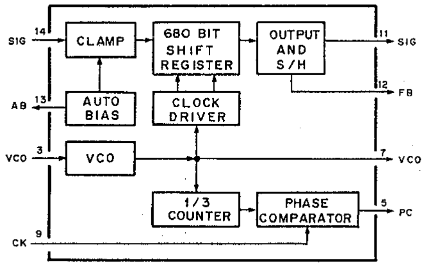

1 GND
2 VDD1 (+5V)
CK IN 3
4 VDD2 (+9V)
8 SIG IN
7 AUTO BIAS
6 FEED BACK
5 SIG OUT


SIG IN 8
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
5 SIG OUT
CK IN 3
CLOCK DRIVER
DUTY
AUTO BIAS
7 AUTO BIAS
6 FEED BACK

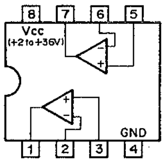
CXL5005P (SONY)
C-MOS CCD 1H DELAY LINE FOR NTSC
- TOP VIEW -


1 GND
2 VDD1 (+5V)
VCO IN 3
4 VDD2 (+9V)
PC OUT 5
6 NC
VCO OUT 7
14 SIG IN
13 AB OUT
12 FB OUT
11 SIG OUT
NC 10
9 CK IN
VDD3 (+5V) 8

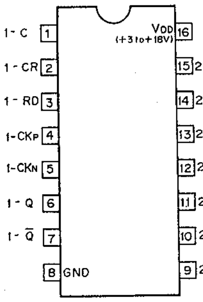
AB ; AUTO BIAS DC
FB ; FEEDBACK DC
PC ; PHASE COMPARATOR
SIG ; SIGNAL

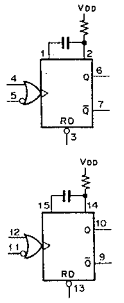

SIG 14
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
11 SIG
12 FB
AB 13
AUTO BIAS
CLOCK DRIVER
VCO 3
VCO
7 VCO
1/3 COUNTER
PHASE COMPARATOR
5 PC
CK 9

LM2903DQ (RAYTHEON)
VOLTAGE COMPARATOR
- TOP VIEW -


8
7
6
5
Vcc (+2 to +36V)
GND
1
2
3
4

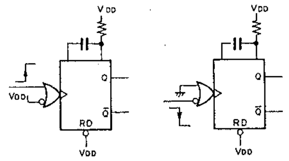
HD14538BP (HITACHI)
MC14538BCP (MOTOROLA)
TC4538BP
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —


1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD (+3 to +18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄

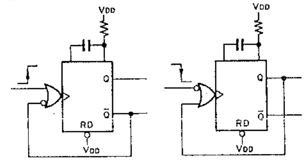

VDD
1
2
4
5
Q 6
Q̄ 7
RD
3
VDD
15
14
12
11
Q 10
Q̄ 9
RD
13

RETRIGGERABLE M.M.V

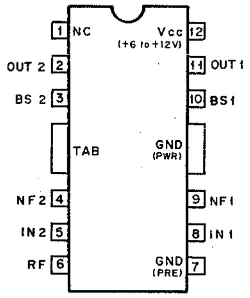
OUTPUT PULSE WIDTH=CR


VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

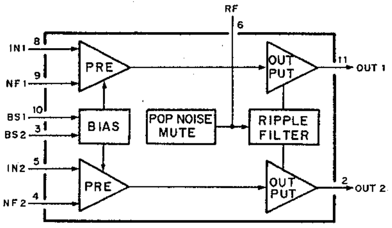
NON-RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

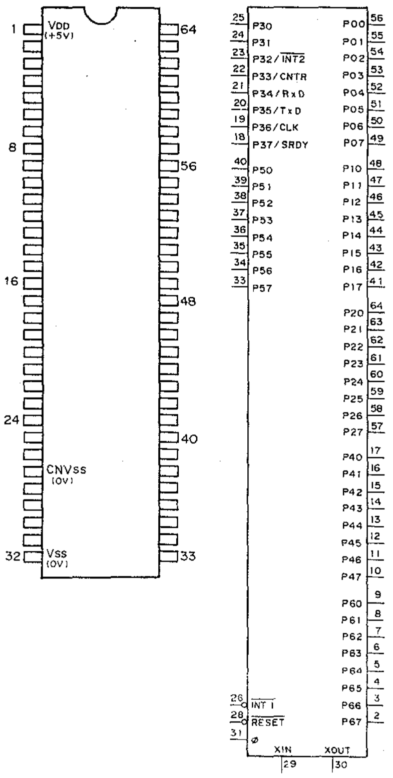
LA4550 (SANYO)
2CH AF POWER AMP
— TOP VIEW —


1 NC
OUT 2 2
BS 2 3
TAB
NF2 4
IN2 5
RF 6
Vcc (+6 to +12V) 12
11 OUT 1
10 BS1
GND (PWR)
9 NF1
8 IN1
GND (PRE) 7

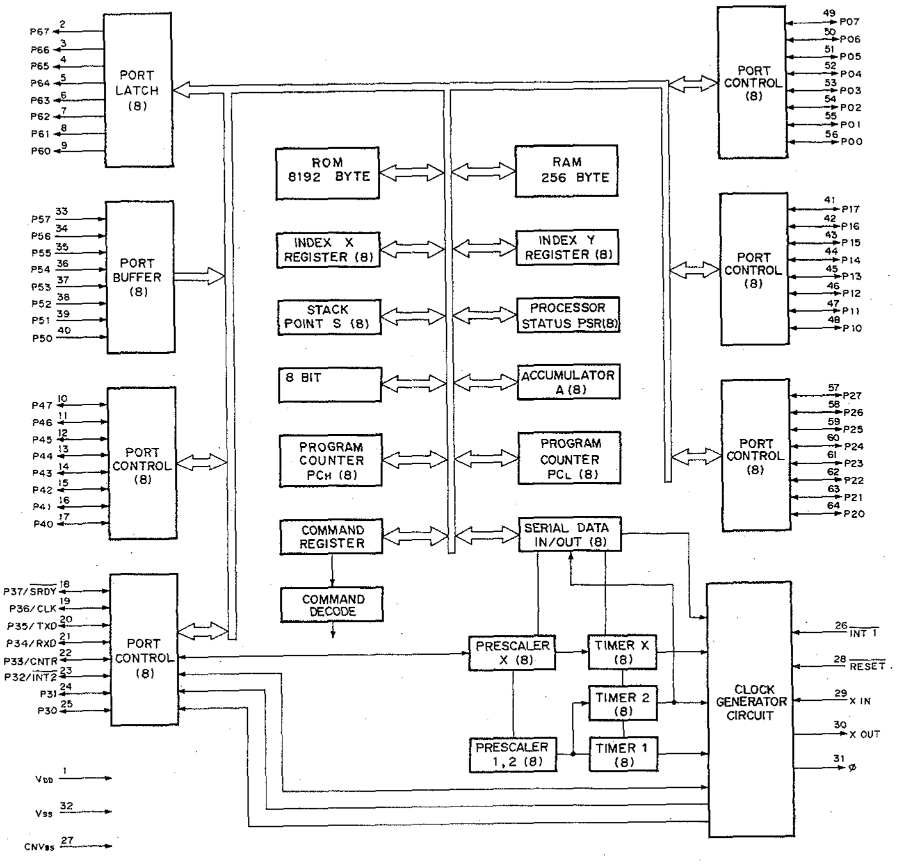
BS1,BS2	;BOOTSTRAP CAPACITOR
IN1,IN2	;INPUTS
NF1,NF2	;NEGATIVE FEEDBACK CONTROL
OUT1,OUT2	;OUTPUTS
RF	;RIPPLE FILTER


RF
6
IN1 8
NF1 9
PRE
OUT PUT
11 OUT 1
BS1 10
BS2 3
BIAS
POP NOISE MUTE
RIPPLE FILTER
IN2 5
NF2 4
PRE
OUT PUT
2 OUT 2

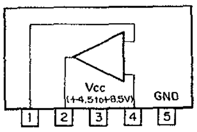
M50747H-XXXSP
C-MOS PROCESS 8-BIT ONE CHIP MICROCOMPUTER
— TOP VIEW —


VDD (+5V)
CNVss (0V)
Vss (0V)
1
8
16
24
32
64
56
48
40
33
25 P30
24 P31
23 P32/INT2
22 P33/CNTR
21 P34/RxD
20 P35/TxD
19 P36/CLK
18 P37/SRDY
40 P50
39 P51
38 P52
37 P53
36 P54
35 P55
34 P56
33 P57
26 INT 1
28 RESET
31 ø
XIN 29
XOUT 30
P00 56
P01 55
P02 54
P03 53
P04 52
P05 51
P06 50
P07 49
P10 48
P11 47
P12 46
P13 45
P14 44
P15 43
P16 42
P17 41
P20 64
P21 63
P22 62
P23 61
P24 60
P25 59
P26 58
P27 57
P40 17
P41 16
P42 15
P43 14
P44 13
P45 12
P46 11
P47 10
P60 9
P61 8
P62 7
P63 6
P64 5
P65 4
P66 3
P67 2

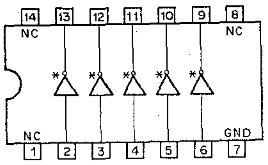
INT 1 ; INTERRUPT 1 IN
P00–P07 ;
P10–P17 ;
P20–P27 ; } 8 BIT I/O PORT
P30–P37 ;
P40–P47 ;
P50–P57; 8 BIT IN PORT
P60–P67; 8 BIT OUT PORT
RESET ; RESET IN (⌐⌙)
X IN/OUT ; CLOCK IN/OUT
ø ; CLOCK TIMING OUT
P32/INT2 ; PORT/INTERRUP2 IN/OUT
P33/CNTR ; PORT/CONTROL IN/OUT
P34/RXD ; RECEIVED DATA
P35/TXD ; TRANCEMITTED DATA
P36/CLK ; PORT/CLOCK IN/OUT
P37/SRDY ; SERIAL IN READY


PORT LATCH (8)
P67 2
P66 3
P65 4
P64 5
P63 6
P62 7
P61 8
P60 9
PORT BUFFER (8)
P57 33
P56 34
P55 35
P54 36
P53 37
P52 38
P51 39
P50 40
PORT CONTROL (8)
P47 10
P46 11
P45 12
P44 13
P43 14
P42 15
P41 16
P40 17
PORT CONTROL (8)
P37/SRDY 18
P36/CLK 19
P35/TXD 20
P34/RXD 21
P33/CNTR 22
P32/INT2 23
P31 24
P30 25
Vdd 1
Vss 32
CNVss 27
ROM 8192 BYTE
RAM 256 BYTE
INDEX X REGISTER (8)
INDEX Y REGISTER (8)
STACK POINT S (8)
PROCESSOR STATUS PSR(8)
8 BIT
ACCUMULATOR A (8)
PROGRAM COUNTER PCH (8)
PROGRAM COUNTER PCL (8)
COMMAND REGISTER
SERIAL DATA IN/OUT (8)
COMMAND DECODE
PRESCALER X (8)
TIMER X (8)
TIMER 2 (8)
PRESCALER 1, 2 (8)
TIMER 1 (8)
CLOCK GENERATOR CIRCUIT
PORT CONTROL (8)
49 P07
50 P06
51 P05
52 P04
53 P03
54 P02
55 P01
56 P00
PORT CONTROL (8)
41 P17
42 P16
43 P15
44 P14
45 P13
46 P12
47 P11
48 P10
PORT CONTROL (8)
57 P27
58 P26
59 P25
60 P24
61 P23
62 P22
63 P21
64 P20
26 INT 1
28 RESET
29 X IN
30 X OUT
31 ø

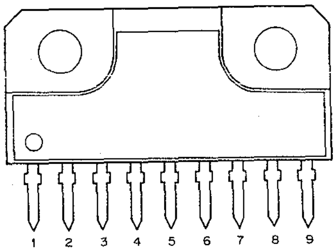
M5215L (MUTSUBISHI)
FM IF AMPLIFIER
— REAR VIEW —

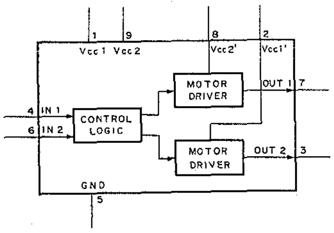

Vcc (+4.5to+8.5V)
GND
1
2
3
4
5

M54516P (MITSUBISHI)
INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
— TOP VIEW —


14
13
12
11
10
9
8
NC
NC
NC
GND
1
2
3
4
5
6
7

M54543L (MITSUBISHI)
BI-DIRECTIONAL MOTOR DRIVER
— SIDE VIEW —

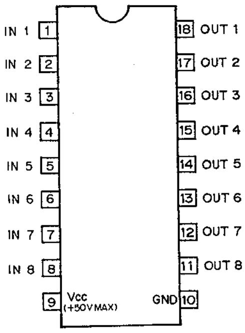


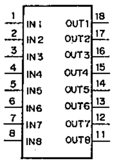

1
9
8
2
Vcc 1
Vcc 2
Vcc2'
Vcc1'
4 IN 1
6 IN 2
CONTROL LOGIC
MOTOR DRIVER
MOTOR DRIVER
OUT 1 7
OUT 2 3
GND
5

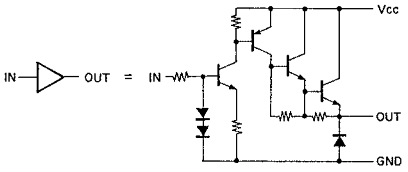
IN		OUT		MODE
1	2	1	2	
0	0	Z	Z	NO OPERATION
1	0	1	0	ROTATION
0	1	0	1	REVERSE ROTATION
1	1	0	0	BRAKE

0 : LOW LEVEL
1 : HIGH LEVEL
Z : HIGH IMPEDANCE

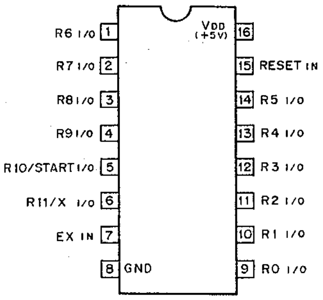
M54562P (MITSUBISHI)
SOURCE TYPE DARLINGTON TRANSISTOR ARRAY
— TOP VIEW —

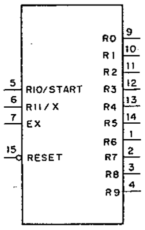

IN 1 1
IN 2 2
IN 3 3
IN 4 4
IN 5 5
IN 6 6
IN 7 7
IN 8 8
9 Vcc (+50VMAX)
GND 10
11 OUT 8
12 OUT 7
13 OUT 6
14 OUT 5
15 OUT 4
16 OUT 3
17 OUT 2
18 OUT 1


1 IN1 OUT1 18
2 IN2 OUT2 17
3 IN3 OUT3 16
4 IN4 OUT4 15
5 IN5 OUT5 14
6 IN6 OUT6 13
7 IN7 OUT7 12
8 IN8 OUT8 11

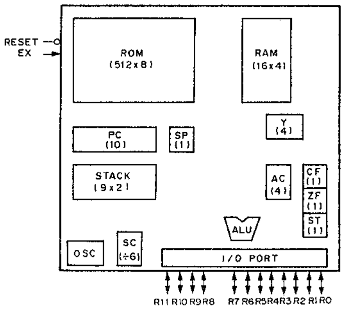

IN
OUT
=
IN
Vcc
OUT
GND

MB88201H (FUJITSU)
C-MOS 4 BIT MICROCOMPUTER
— TOP VIEW —

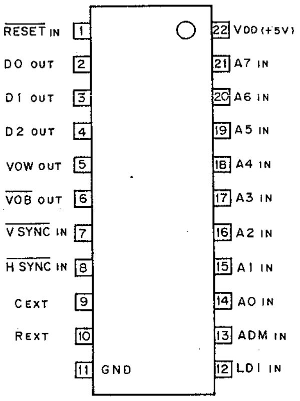

R6 I/O 1
R7 I/O 2
R8 I/O 3
R9 I/O 4
R10/START I/O 5
R11/X I/O 6
EX IN 7
8 GND
9 R0 I/O
10 R1 I/O
11 R2 I/O
12 R3 I/O
13 R4 I/O
14 R5 I/O
15 RESET IN
VDD (+5V) 16

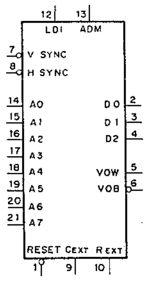

5 R10/START
6 R11/X
7 EX
15 RESET
R0 9
R1 10
R2 11
R3 12
R4 13
R5 14
R6 1
R7 2
R8 3
R9 4

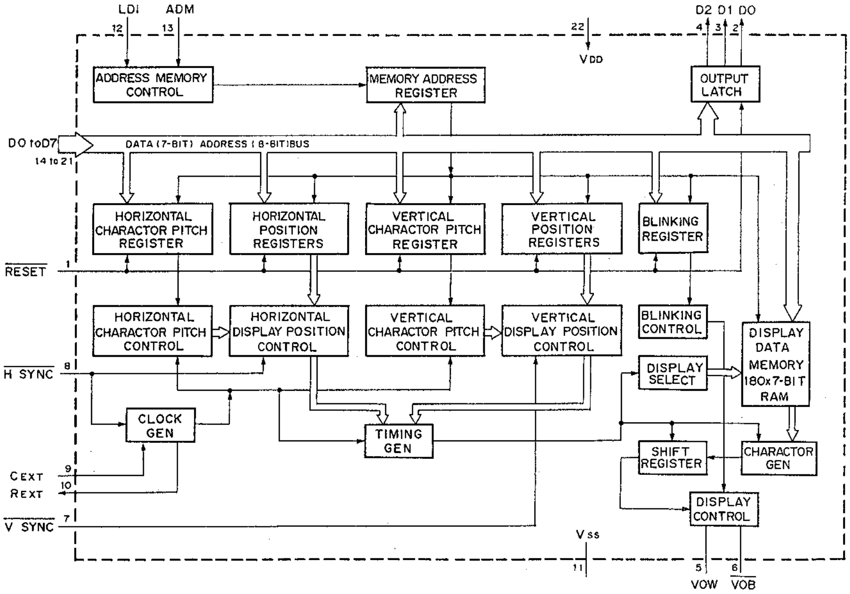
EX	;	EXTERNAL X'TAL IN
R0-R11	;	I/O PORT(R) IN/OUT
RESET	;	RESET IN
START	;	STANDBY RELEASE IN
R11/X	;	EXT CLOCK IN/INT CLOCK OUT


RESET
EX
ROM (512x8)
RAM (16x4)
PC (10)
SP (1)
Y (4)
STACK (9x2)
AC (4)
CF (1)
ZF (1)
ST (1)
ALU
OSC
SC (÷6)
I/O PORT
R11 R10 R9 R8
R7 R6 R5 R4 R3 R2 R1 R0

MB88303 (FUJITSU)
N-MOS PROGRAMMABLE TV DISPLAY CONTROLLER
— TOP VIEW —


RESET IN 1
D0 OUT 2
D1 OUT 3
D2 OUT 4
VOW OUT 5
VOB OUT 6
V SYNC IN 7
H SYNC IN 8
CEXT 9
REXT 10
11 GND
12 LDI IN
13 ADM IN
14 A0 IN
15 A1 IN
16 A2 IN
17 A3 IN
18 A4 IN
19 A5 IN
20 A6 IN
21 A7 IN
22 VDD (+5V)

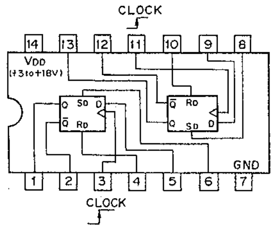

12 LDI
13 ADM
7 V SYNC
8 H SYNC
14 A0
15 A1
16 A2
17 A3
18 A4
19 A5
20 A6
21 A7
D0 2
D1 3
D2 4
VOW 5
VOB 6
RESET 1
CEXT 9
REXT 10


LDI
ADM
12
13
22
VDD
D2 D1 D0
4 3 2
ADDRESS MEMORY CONTROL
MEMORY ADDRESS REGISTER
OUTPUT LATCH
D0 to D7
14 to 21
DATA (7-BIT) ADDRESS (8-BIT) BUS
HORIZONTAL CHARACTOR PITCH REGISTER
HORIZONTAL POSITION REGISTERS
VERTICAL CHARACTOR PITCH REGISTER
VERTICAL POSITION REGISTERS
BLINKING REGISTER
RESET
1
HORIZONTAL CHARACTOR PITCH CONTROL
HORIZONTAL DISPLAY POSITION CONTROL
VERTICAL CHARACTOR PITCH CONTROL
VERTICAL DISPLAY POSITION CONTROL
BLINKING CONTROL
DISPLAY DATA MEMORY 180x7-BIT RAM
H SYNC
8
DISPLAY SELECT
CLOCK GEN
TIMING GEN
SHIFT REGISTER
CHARACTOR GEN
CEXT
9
REXT
10
DISPLAY CONTROL
V SYNC
7
Vss
11
5
6
VOW
VOB

ADM	;	ADDRESS INCREMENT MODE
A0 to A7	;	ADDRESS INPUT
D0 to D2	;	DATA OUTPUT
CEXT	;	EXT CAPACITOR FOR OSC
LDI	;	LOAD DATA AND INSTRUCTION
VOB	;	VIDEO BLACK OUT
VOW	;	VIDEO WHITE OUT
REXT	;	EXT RESISTOR FOR OSC

b3-b0 / b5-b4	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
00	A	B	C	D	E	F	G	H	I	J	K	L	M	·	⊔	BLANK
01	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	:	█	(
10	0	1	2	3	4	5	6	7	8	9	?	!	'	.	BACK	)
11	↑	↓	←	→	+	−	*	/	=	&						

MC14013BCP (MOTOROLA)
C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —


CLOCK
14
13
12
11
10
9
8
VDD
(+3 to +18V)
SD
RD
D
Q
$\bar{Q}$
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP FLOP

SD	RD	Q	$\bar{Q}$
0	0	Qn	$\bar{Q}$n
0	1	0	1
1	0	1	0
1	1	1	1

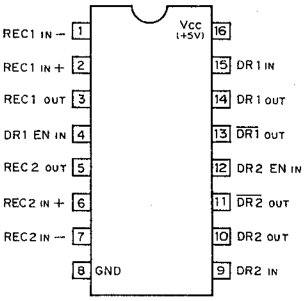
D-TYPE FLIP FLOP

CKn	CKn+1
D	Q
0	0
1	1

0; LOW LEVEL
1; HIGH LEVEL

CLOCK CK; _╱‾
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK

MC34051P (MOTOROLA)
RS-422 DRIVER/RECEIVER
— TOP VIEW —

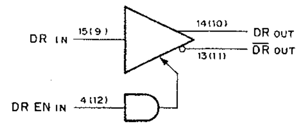

REC1 IN − 1
REC1 IN + 2
REC1 OUT 3
DR1 EN IN 4
REC2 OUT 5
REC2 IN + 6
REC2 IN − 7
8 GND
Vcc (+5V) 16
15 DR1 IN
14 DR1 OUT
13 $\overline{\text{DR1}}$ OUT
12 DR2 EN IN
11 $\overline{\text{DR2}}$ OUT
10 DR2 OUT
9 DR2 IN

DR EN	MODE
0	DISABLE
1	ENABLE

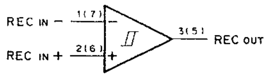
0 ; LOW LEVEL
1 ; HIGH LEVEL

DR ; DRIVER
DR EN ; DRIVER ENABLE
REC ; RECEIVER

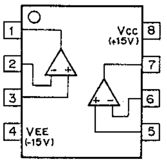
DRIVER CIRCUIT


DR IN
15(9)
14(10)
DR OUT
13(11)
$\overline{\text{DR}}$ OUT
DR EN IN
4(12)

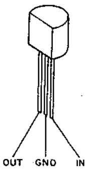
RECEIVER CIRCUIT


REC IN −
1(7)
REC IN +
2(6)
3(5)
REC OUT

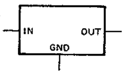
RC2043DD (RAYTHEON)
OPERATIONAL AMPLIFIER
— TOP VIEW —


1
2
3
4
VEE (-15V)
Vcc (+15V)
8
7
6
5

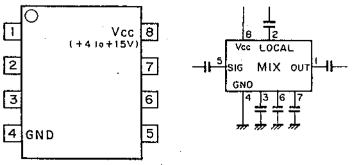
RC78L ? ? A (RAYTHEON)
POSITIVE VOLTAGE REGULATOR (100mA)



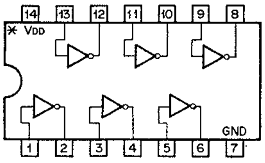
OUTPUT VOLTAGE	RC78L??A
+2.6V	RC78L02A
+4V	--------
+5V	RC78L05A
+6V	RC78L06A
+6.2V	--------
+7V	--------
+8V	RC78L08A
+8.2V	--------
+9V	RC78L09A
+10V	--------
+12V	RC78L12A
+15V	RC78L15A
+18V	RC78L18A
+20V	RC78L20A
+24V	RC78L24A

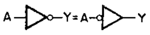


SN16913P (TI)
BALANCED MIXER
— TOP VIEW —


1
2
3
4
GND
Vcc
(+4 to +15V)
8
7
6
5
8
2
Vcc
LOCAL
5
SIG
MIX
OUT
1
GND
4
3
6
7

SN74HC04N (TI)
C-MOS INVERTER
— TOP VIEW —


14
13
12
11
10
9
8
* VDD
GND
1
2
3
4
5
6
7



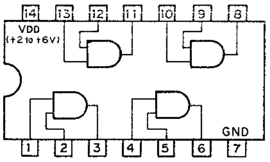
Y = $\bar{A}$

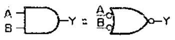
A	Y
0	1
1	0

0: LOW LEVEL
1: HIGH LEVEL

* VDD HC, HCU; +2 to +6V
HCT; +5V

SN74HC08N (TI)
C-MOS 2-INPUT AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7

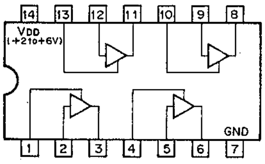


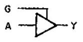
$Y = A \cdot B = \overline{\bar{A} + \bar{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

SN74HC126N (TI)
C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7

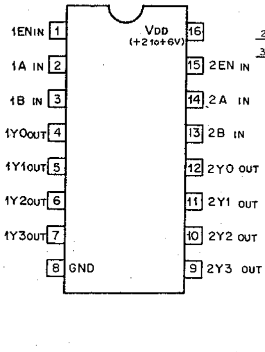


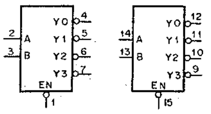
G	A	Y
1	1	1
1	0	0
0	X	HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

SN74HC139N (TI) (V_{cc} = + 2 to + 6V)

C-MOS 1-OF-4 DECODER/DEMULTIPLEXER
— TOP VIEW —

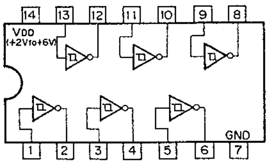

1EN IN 1
1A IN 2
1B IN 3
1Y0 OUT 4
1Y1 OUT 5
1Y2 OUT 6
1Y3 OUT 7
8 GND
VDD (+2 to +6V) 16
15 2EN IN
14 2A IN
13 2B IN
12 2Y0 OUT
11 2Y1 OUT
10 2Y2 OUT
9 2Y3 OUT

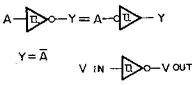

2
A
3
B
Y0
4
Y1
5
Y2
6
Y3
7
EN
1
14
A
13
B
Y0
12
Y1
11
Y2
10
Y3
9
EN
15

INPUTS			OUTPUTS			
EN	B	A	Y3	Y2	Y1	Y0
0	0	0	1	1	1	0
0	0	1	1	1	0	1
0	1	0	1	0	1	1
0	1	1	0	1	1	1
1	X	X	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC14N (TI)
C-MOS SCHMITT TRIGGER INVERTER
– TOP VIEW –

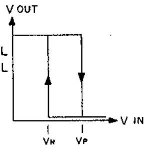

14
13
12
11
10
9
8
VDD
(+2Vto+6V)
GND
1
2
3
4
5
6
7


A
Y = A
Y
V IN
V OUT

Y = $\overline{A}$

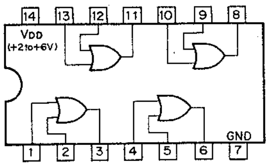
A	Y
0	1
1	0

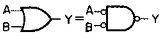
0 ; LOW LEVEL
1 ; HIGH LEVEL



VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

SN74HC32N (TI)
C-MOS 2-INPUT OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2to+6V)
GND
1
2
3
4
5
6
7

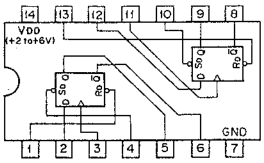


Y = A + B = $\overline{\overline{A}\cdot\overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

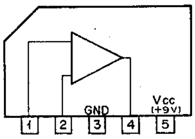
SN74HC74N (TI)
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+2to+6V)
SD
Q
RD
Q
GND
1
2
3
4
5
6
7

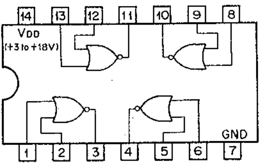
INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1*	1*
1	1	⎍	1	1	0
1	1	⎍	0	0	1
1	1	0	X	Qn	$\overline{Q}$n

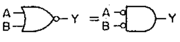
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
1* ; NONSTABLE

TA7060AP (TOSHIBA)
LINEAR AMP
— SIDE VIEW —


GND
Vcc
(+9V)
1
2
3
4
5

TC4001UBP (TOSHIBA)
C-MOS 2-INPUT NOR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7

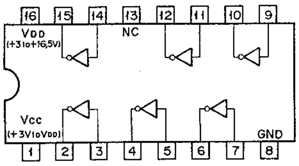


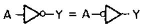
Y = $\overline{A+B} = \overline{A}\cdot\overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

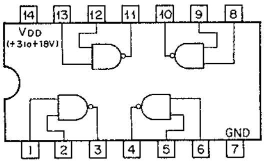
TC4009UBP (TOSHIBA)
C-MOS INVERTING TYPE BUFFER/CONVERTER (TO TTL LEVEL)
— TOP VIEW —

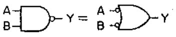

16
15
14
13
12
11
10
9
VDD
(+3to+16.5V)
NC
Vcc
(+3VtoVDD)
GND
1
2
3
4
5
6
7
8



A	Y
0	1
1	0

TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7

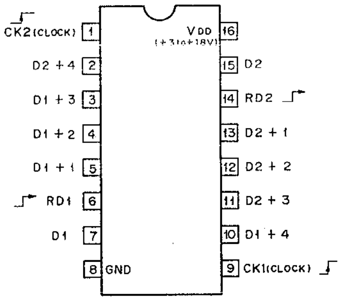


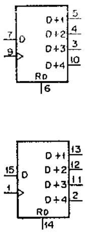
Y = $\overline{A\cdot B} = \overline{A}+\overline{B}$

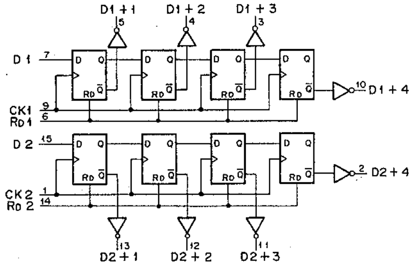
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

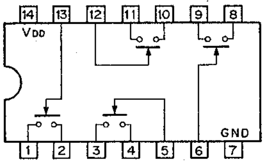
TC4015BP (TOSHIBA)
C-MOS DUAL 4-STAGE STATIC SHIFT REGISTER WITH DIRECT RESET
— TOP VIEW —


CK2 (CLOCK) 1
D2 + 4 2
D1 + 3 3
D1 + 2 4
D1 + 1 5
RD1 6
D1 7
8 GND
VDD (+3to+18V) 16
15 D2
14 RD2
13 D2 + 1
12 D2 + 2
11 D2 + 3
10 D1 + 4
9 CK1 (CLOCK)


7
D
9
D+1 5
D+2 4
D+3 3
D+4 10
RD
6
15
D
1
D+1 13
D+2 12
D+3 11
D+4 2
RD
14


D1 + 1
D1 + 2
D1 + 3
D1
CK1
RD1
D1 + 4
D2
CK2
RD2
D2 + 4
D2 + 1
D2 + 2
D2 + 3
D
Q
RD
Q

TC4016BPHB (TOSHIBA)
C-MOS BILATERAL SWITCH
— TOP VIEW —

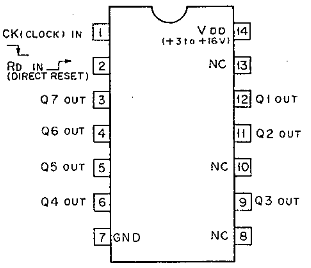

14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7

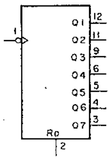
CONT IN	SW
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4024BP (TOSHIBA)

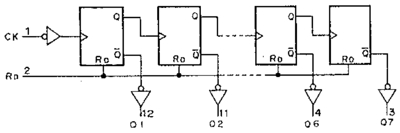
C-MOS ASYNCHRONOUS 7-BIT BINARY COUNTER
— TOP VIEW —


CK(CLOCK) IN 1
RD IN (DIRECT RESET) 2
Q7 OUT 3
Q6 OUT 4
Q5 OUT 5
Q4 OUT 6
7 GND
VDD (+3 to +16V) 14
NC 13
12 Q1 OUT
11 Q2 OUT
NC 10
9 Q3 OUT
NC 8


1
Q1 12
Q2 11
Q3 9
Q4 6
Q5 5
Q6 4
Q7 3
RD
2

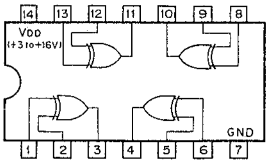
COUNT	INPUTS		OUTPUTS						
	CK	RD	Q7	Q6	Q5	Q4	Q3	Q2	Q1
0	X	1	0	0	0	0	0	0	0
1	⌐L	0	0	0	0	0	0	0	1
2	⌐L	0	0	0	0	0	0	1	0
3	⌐L	0	0	0	0	0	0	1	1
4	⌐L	0	0	0	0	0	1	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
125	⌐L	0	1	1	1	1	1	0	1
126	⌐L	0	1	1	1	1	1	1	0
127	⌐L	0	1	1	1	1	1	1	1
—	0	0	NO CHANGE						
—	1	0							

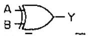
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE


CK 1
RD 2
Q
RD
Q̄
12 Q1
11 Q2
4 Q6
3 Q7

TC4030BPHB (TOSHIBA)

C-MOS EXCLUSIVE OR GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +16V)
GND
1 2 3 4 5 6 7



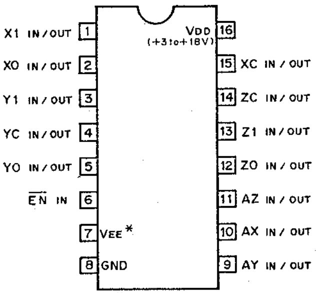
$Y = \bar{A} \cdot B + A \cdot \bar{B}$

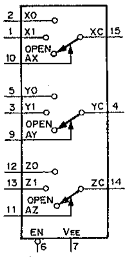
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4053BP (TOSHIBA)
TC4053BPHB (TOSHIBA)

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT


2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN
VEE
6
7

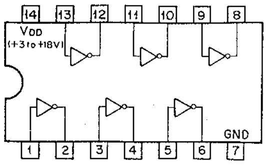
VEE* ; VDD – VEE = +3 to +18 V

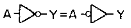
CONT. INPUTS		ON CHANNEL
$\overline{EN}$	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

TC4069UBP (TOSHIBA)

C-MOS INVERTER
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7



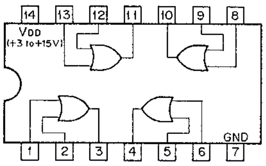
$Y = \bar{A}$

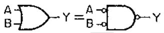
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4071BP (TOSHIBA)

C-MOS 2-INPUT OR GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7



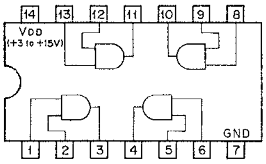
$Y = A + B = \overline{\bar{A} \cdot \bar{B}}$

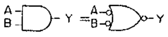
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4081BP (TOSHIBA)

C-MOS 2-INPUT AND GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7



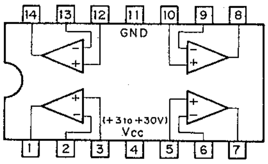
$Y = A \cdot B = \overline{\bar{A} + \bar{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

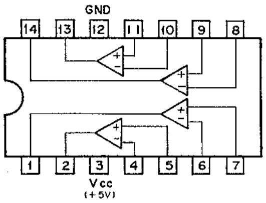
uPC324C (NEC)

QUAD. OP AMPLIFIER
— TOP VIEW —


14 13 12 11 10 9 8
GND
(+3 to +30V) Vcc
1 2 3 4 5 6 7

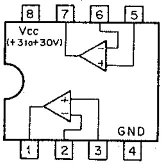
uPC339C (NEC)

COMPARATOR
— TOP VIEW —

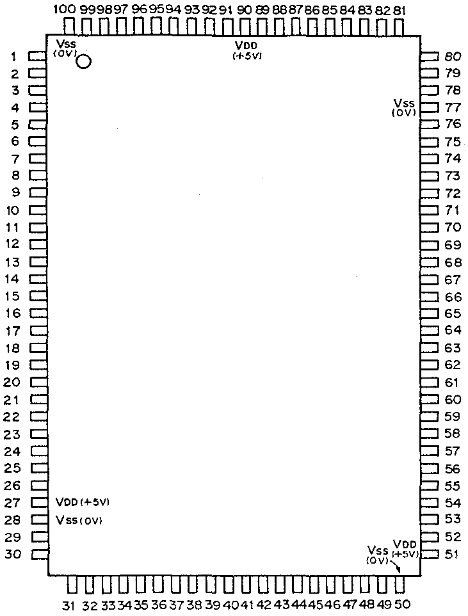

GND
14 13 12 11 10 9 8
1 2 3 4 5 6 7
Vcc (+5V)

uPC358C (NEC)

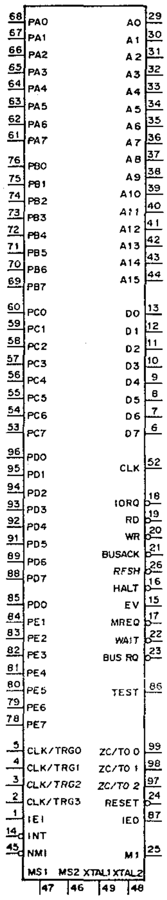
DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —


8 7 6 5
Vcc (+3 to +30V)
GND
1 2 3 4

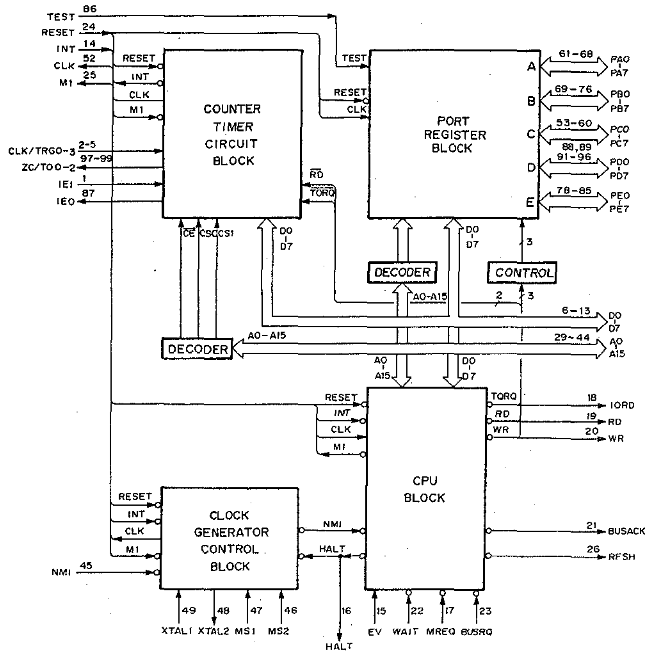
TMPZ84C011AF (TOSHIBA)
C-MOS 8 BIT MICROPROCESSOR
— TOP VIEW —


100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
Vss (OV)
VDD (+5V)
Vss (OV)
VDD (+5V)
Vss (OV)
Vss (OV)
VDD (+5V)

NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1	○		IEI	51			Vcc
2	○		CLK/TRG3	52		○	CLK
3	○		CLK/TRG2	53	○	○	PC7
4	○		CLK/TRG1	54	○	○	PC6
5	○		CLK/TRG0	55	○	○	PC5
6	○	○	D7	56	○	○	PC4
7	○	○	D6	57	○	○	PC3
8	○	○	D5	58	○	○	PC2
9	○	○	D4	59	○	○	PC1
10	○	○	D3	60	○	○	PC0
11	○	○	D2	61	○	○	PA7
12	○	○	D1	62	○	○	PA6
13	○	○	D0	63	○	○	PA5
14	○		$\overline{\text{INT}}$	64	○	○	PA4
15	○		EV	65	○	○	PA3
16		○	$\overline{\text{HALT}}$	66	○	○	PA2
17		○	$\overline{\text{MREQ}}$	67	○	○	PA1
18		○	$\overline{\text{IORQ}}$	68	○	○	PA0
19		○	$\overline{\text{RD}}$	69	○	○	PB7
20		○	$\overline{\text{WR}}$	70	○	○	PB6
21		○	$\overline{\text{BUSACK}}$	71	○	○	PB5
22	○		$\overline{\text{WAIT}}$	72	○	○	PB4
23	○		$\overline{\text{BUSREQ}}$	73	○	○	PB3
24	○		$\overline{\text{RESET}}$	74	○	○	PB2
25		○	$\overline{\text{M1}}$	75	○	○	PB1
26		○	$\overline{\text{RFSH}}$	76	○	○	PB0
27			Vcc	77			Vss
28			Vss	78	○	○	PE7
29		○	A0	79	○	○	PE6
30		○	A1	80	○	○	PE5
31		○	A2	81	○	○	PE4
32		○	A3	82	○	○	PE3
33		○	A4	83	○	○	PE2
34		○	A5	84	○	○	PE1
35		○	A6	85	○	○	PE0
36		○	A7	86	○		TEST
37		○	A8	87		○	IEO
38		○	A9	88	○	○	PD7
39		○	A10	89	○	○	PD6
40		○	A11	90			Vcc
41		○	A12	91	○	○	PD5
42		○	A13	92	○	○	PD4
43		○	A14	93	○	○	PD3
44		○	A15	94	○	○	PD2
45	○		$\overline{\text{NMI}}$	95	○	○	PD1
46	○		MS2	96	○	○	PD0
47	○		MS1	97		○	ZC/TO2
48		○	XTAL2	98		○	ZC/TO1
49	○		XTAL1	99		○	ZC/TO0
50			Vss	100			Vss

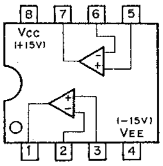

68 PA0
67 PA1
66 PA2
65 PA3
64 PA4
63 PA5
62 PA6
61 PA7
76 PB0
75 PB1
74 PB2
73 PB3
72 PB4
71 PB5
70 PB6
69 PB7
60 PC0
59 PC1
58 PC2
57 PC3
56 PC4
55 PC5
54 PC6
53 PC7
96 PD0
95 PD1
94 PD2
93 PD3
92 PD4
91 PD5
89 PD6
88 PD7
85 PE0
84 PE1
83 PE2
82 PE3
81 PE4
80 PE5
79 PE6
78 PE7
5 CLK/TRG0
4 CLK/TRG1
3 CLK/TRG2
2 CLK/TRG3
1 IEI
14 INT
45 NMI
A0 29
A1 30
A2 31
A3 32
A4 33
A5 34
A6 35
A7 36
A8 37
A9 38
A10 39
A11 40
A12 41
A13 42
A14 43
A15 44
D0 13
D1 12
D2 11
D3 10
D4 9
D5 8
D6 7
D7 6
CLK 52
IORQ 18
RD 19
WR 20
BUSACK 21
RFSH 26
HALT 16
EV 15
MREQ 17
WAIT 22
BUS RQ 23
TEST 86
ZC/TO 0 99
ZC/TO 1 98
ZC/TO 2 97
RESET 24
IEO 87
M1 25
MS1 47
MS2 46
XTAL1 49
XTAL2 48

A0–A15 ; 3–STATE ADDRESS BUS OUTPUTS
BUSACK ; BUS ACKNOWLEDGE OUTPUT
BUS REQ ; BUS REQUEST INPUT
CLK ; CLOCK OUTPUT
CLK/TRG0–3 ; EXTERNAL CLOCK / TIMER TRIGGER0–3 INPUTS
D0–D7 ; 3–STATE DATA BUS INPUTS/OUTPUTS
EV ; EVALUATER INPUT
HALT ; HALT OUTPUT
IEI/IEO ; CTC INTERRUPT ENABLE INPUT/OUTPUT
INT ; MASKABLE INTERRUPT REQUEST INPUT
IORQ ; 3–STATE I/O REQUEST OUTPUT
M1 ; 3–STATE MACHINE CYCLE 1 OUTPUT
MREQ ; 3–STATE REQUEST OUTPUT
MS1/MS2 ; MODE SELECT 1/2 INPUTS
NMI ; NON–MASKABLE INTERRUPT REQUEST INPUT
PA0–PA7 ;
PB0–PB7 ;
PC0–PC7 ; } 3–STATE I/O PORT
PD0–PD7 ;
PE0–PE7 ;
RD ; 3–STATE READ OUTPUT
RESET ; RESET INPUT
RFSH ; REFRESH OUTPUT
TEST ; TEST INPUT
WAIT ; WAIT REQUEST INPUT
WR ; 3–STATE WRITE OUTPUT
ZC/TO0–2 ; ZERO COUNT/TIME OUT 0–2 OUTPUTS

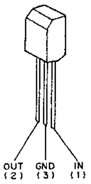

TEST 86
RESET 24
INT 14
CLK 52
M1 25
CLK/TRG0–3 2–5
ZC/TO0–2 97–99
IEI 1
IEO 87
RESET
INT
CLK
M1
COUNTER TIMER CIRCUIT BLOCK
RD
IORQ
CE CS0 CS1
D0–D7
TEST
RESET
CLK
PORT REGISTER BLOCK
A 61–68 PA0–PA7
B 69–76 PB0–PB7
C 53–60 PC0–PC7
88,89 91–96 D PD0–PD7
E 78–85 PE0–PE7
D0–D7
3
DECODER
CONTROL
A0–A15
2
3
6–13 D0–D7
DECODER
A0–A15
29~44 A0–A15
A0–A15
D0–D7
RESET
INT
CLK
M1
IORQ 18 IORD
RD 19 RD
WR 20 WR
CPU BLOCK
21 BUSACK
26 RFSH
RESET
INT
CLK
M1
CLOCK GENERATOR CONTROL BLOCK
NMI
HALT
NMI 45
49 XTAL1
48 XTAL2
47 MS1
46 MS2
16 HALT
15 EV
22 WAIT
17 MREQ
23 BUSRQ

IC, TRANSISTOR

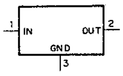
uPC4558C (NEC)
OPERATIONAL AMPLIFIER
– TOP VIEW –


8
7
6
5
Vcc
(+15V)
(−15V)
VEE
1
2
3
4

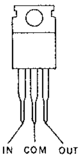
uPC78L ? ?A (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)


OUT (2)
GND (3)
IN (1)

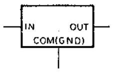
OUTPUT VOLTAGE	uPC78L??	UPC78L??A
5V	uPC78L05	uPC78L05A
6V		
8V	uPC78L08	
9V		
12V	uPC78L12	
15V	uPC78L15	

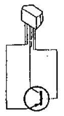

1
IN
OUT
2
GND
3

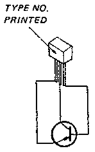
uPC78M ? ?H (NEC)
POSITIVE VOLTAGE REGULATOR (0.5A)
— SIDE VIEW —

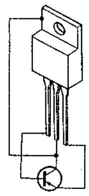


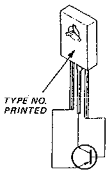
OUTPUT VOLTAGE	uPC78M??H
+5V	uPC78M05H
+6V	---------
+7V	---------
+8V	uPC78M08H
+12V	uPC78M12H
+15V	uPC78M15H
+18V	---------
+20V	---------
+24V	uPC78M24H

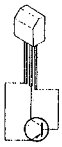

IN
OUT
COM(GND)

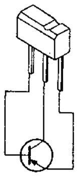

2SA1115

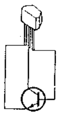

TYPE NO.
PRINTED
2SA1175
2SA1175F

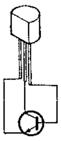

2SA768
2SA771

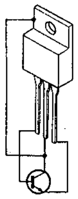

TYPE NO.
PRINTED
2SB649A

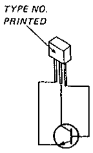

2SB733


2SB822

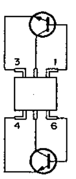

2SC1740S
2SC403SP


2SC1815
2SC2878

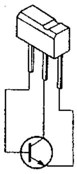

2SC1826

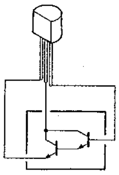

TYPE NO.
PRINTED
2SC2785
2SC2785F
2SC2785K

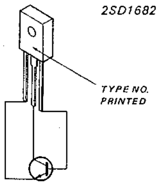
–TOP VIEW–

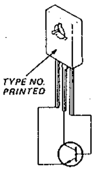


2SC3064

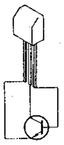

2SD1055


2SD1111

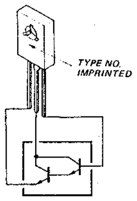

TYPE NO.
PRINTED
2SD1682


TYPE NO. PRINTED

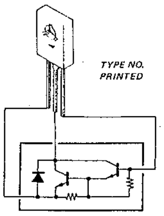
2SD669A



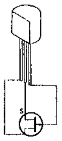
2SD773
2SD774


TYPE NO. IMPRINTED

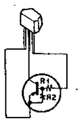
2SD894


TYPE NO. PRINTED

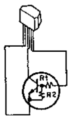
2SD998



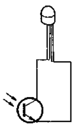
2SK523



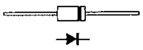
DTA124XS (R1=22K, R2=47K)
DTA143XS (R1=4.7K, R2=10K)
DTA144ES (R1=47K, R2=47K)



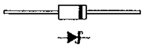
DTC124ES (R1=22K, R2=22K)
DTC124XS (R1=22K, R2=47K)
DTC143TS (R1=4.7K, R2= OPEN)
DTC144ES (R1=47K, R2=47K)



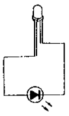
SPS102



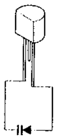
10E-2
1S1555S
1SS119
1SS133



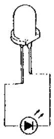
1SS97
1SS97-1
1SS99



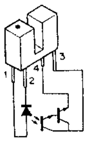
BR5104S ; RED



FC54M

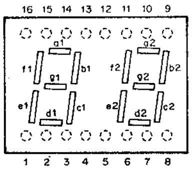


GL-5HD5 ; RED

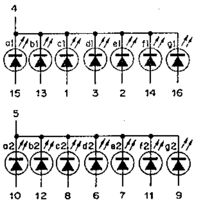


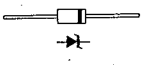
GP-1L52
GP-1L53

DUAL 7-SEGMENT LED
— TOP VIEW —

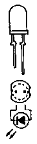

16 15 14 13 12 11 10 9
a1
f1
b1
g1
e1
c1
d1
a2
f2
b2
g2
e2
c2
d2
1 2 3 4 5 6 7 8

LB402VK (ROHM)

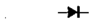

4
a1 b1 c1 d1 e1 f1 g1
15 13 1 3 2 14 16
5
a2 b2 c2 d2 e2 f2 g2
10 12 8 6 7 11 9



RD ? ?EB ?
RD ? ?ESB ?



TLUG154 ; GREEN



U05E

SECTION 15
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

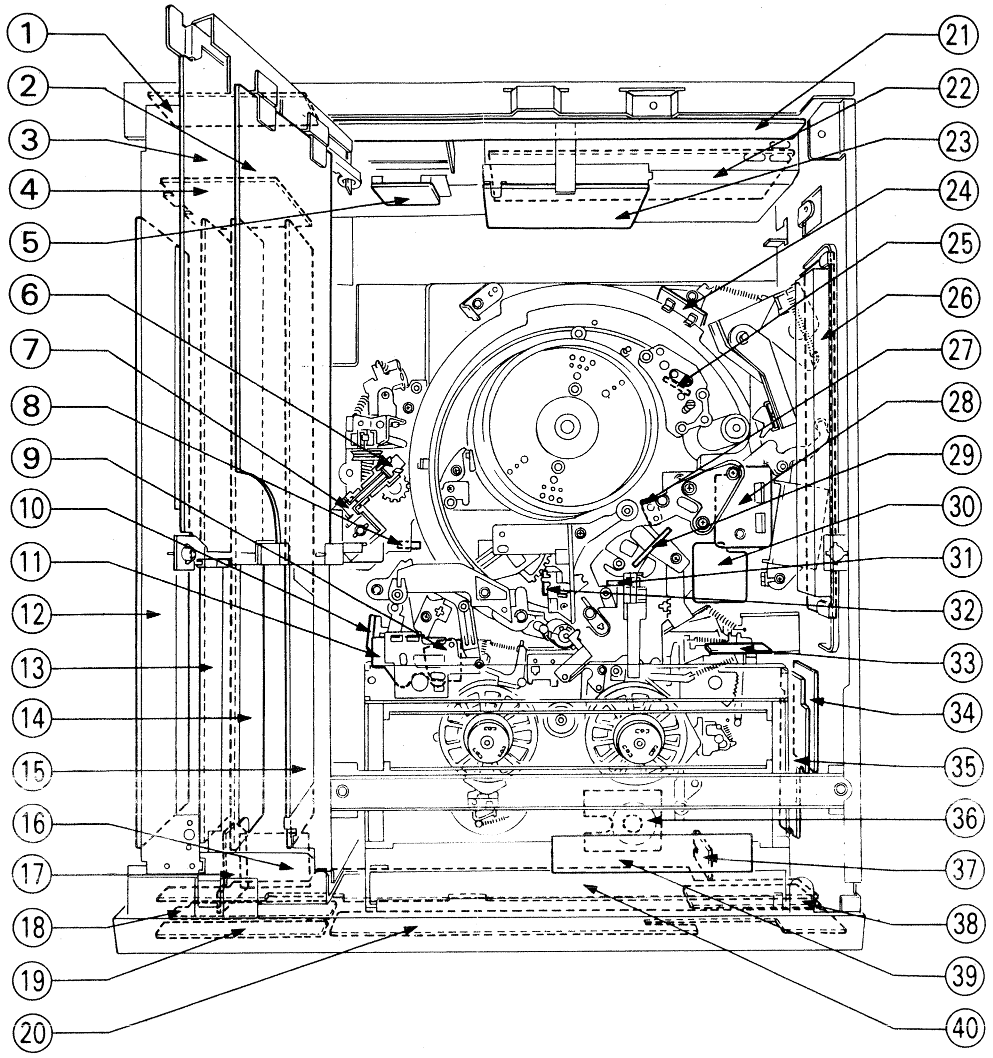
CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-72	Y Demodulator, SP Detector, Character Mixer
	DM-73	C PB Processor
	DUS-271	Connector
	MD-60A	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40C	REC/PB Amplifier
AUDIO	AA-16	Connector
	AU-124A	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31A	Dolby NR, NR Pilot REC/Detector
	SW-315A	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112C	Drum/Capstan Servo
	SY-141C	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31A	REC/PB Amplifier
POWER	AC-98	Line Filter
	DC-31P	DC Supply
	UR-02	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159A	Function Key Board
	DP-62	Display
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
	SY-141C	System Control
	TG-22	Tension Regulator LED
OTHERS	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

[TOP VIEW]



1 CP-136 Board
2 DM-73 Board
3 DM-72 Board
4 AA-16 Board
5 RM-66 Board
6 PH-5 Board
7 PH-5 Board
8 LM-13 Board
9 SE-46 Board
10 PTC-34 Board
11 PTC-30 Board
12 AU-124A Board
13 NR-31A Board
14 SV-112C Board
15 MD-60A Board
16 MC-28 Board
17 HP-42 Board
18 VR-80 Board
19 MT-53 Board
20 SW-315A Board
21 DUS-271 Board
22 Switching Regulator (UR-02)
23 DC-31P Board
24 PTC-33 Board
25 DUS-92 Board
26 RP-40C Board
27 HN-84 Board
28 DUS-147 Board
29 EC-32 Board
30 HN-130 Board
31 PH-5 Board
32 PH-5 Board
33 CC-37 Board
34 PD-40 Board
35 CC-36 Board
36 RM-39 Board
37 PTC-32 Board
38 DP-62 Board
39 LP-41 Board
40 KY-159A Board

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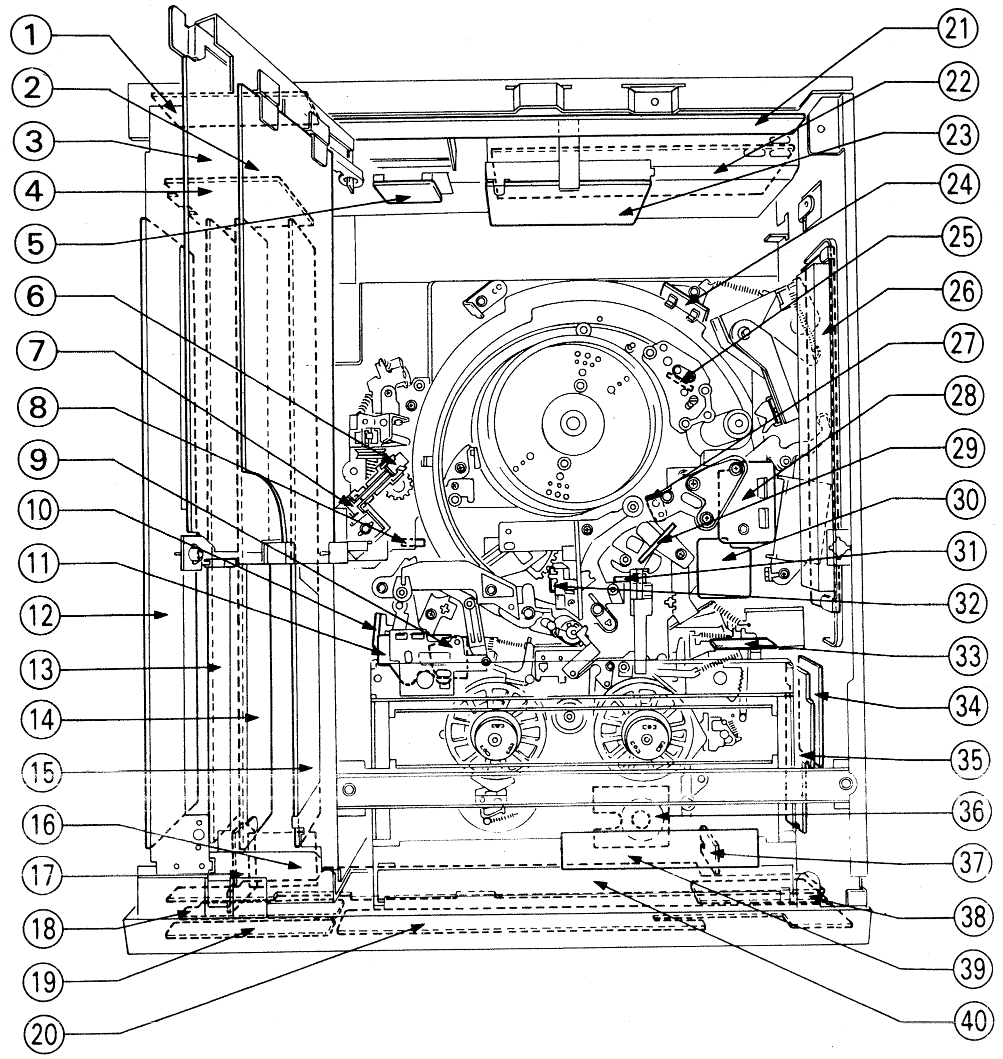
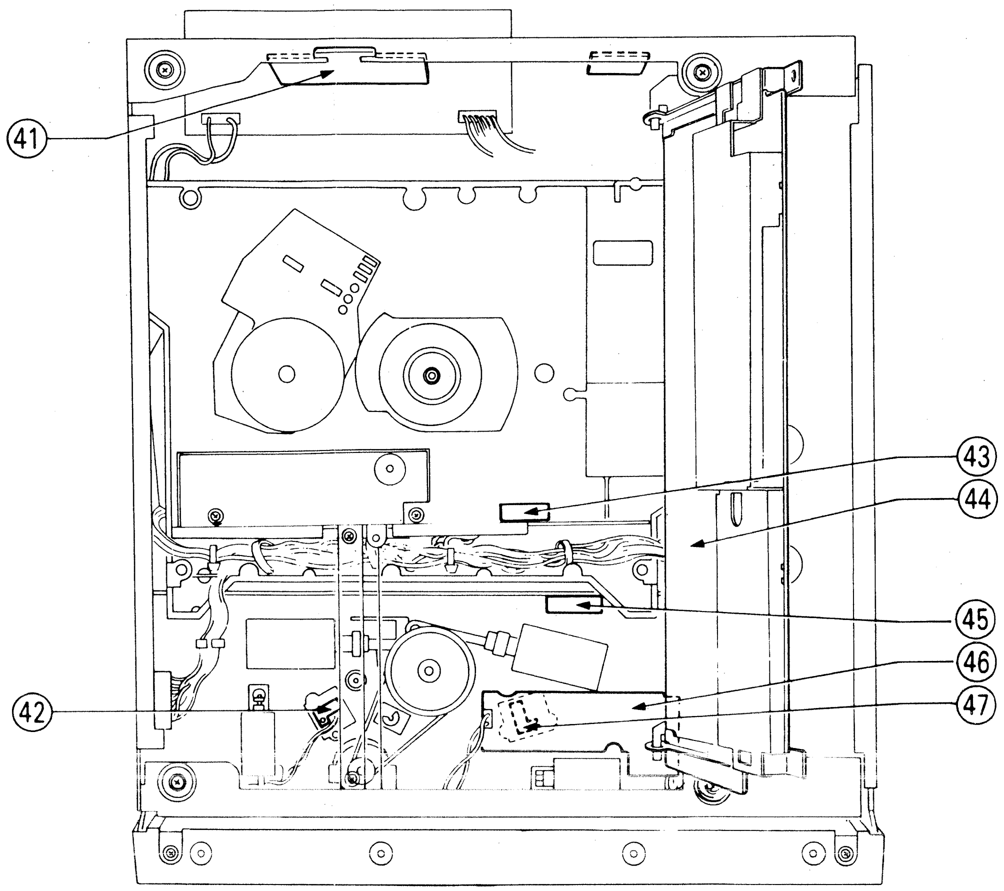
ector
ector
Detector
Detector
LED
ent Lamp

[TOP VIEW]



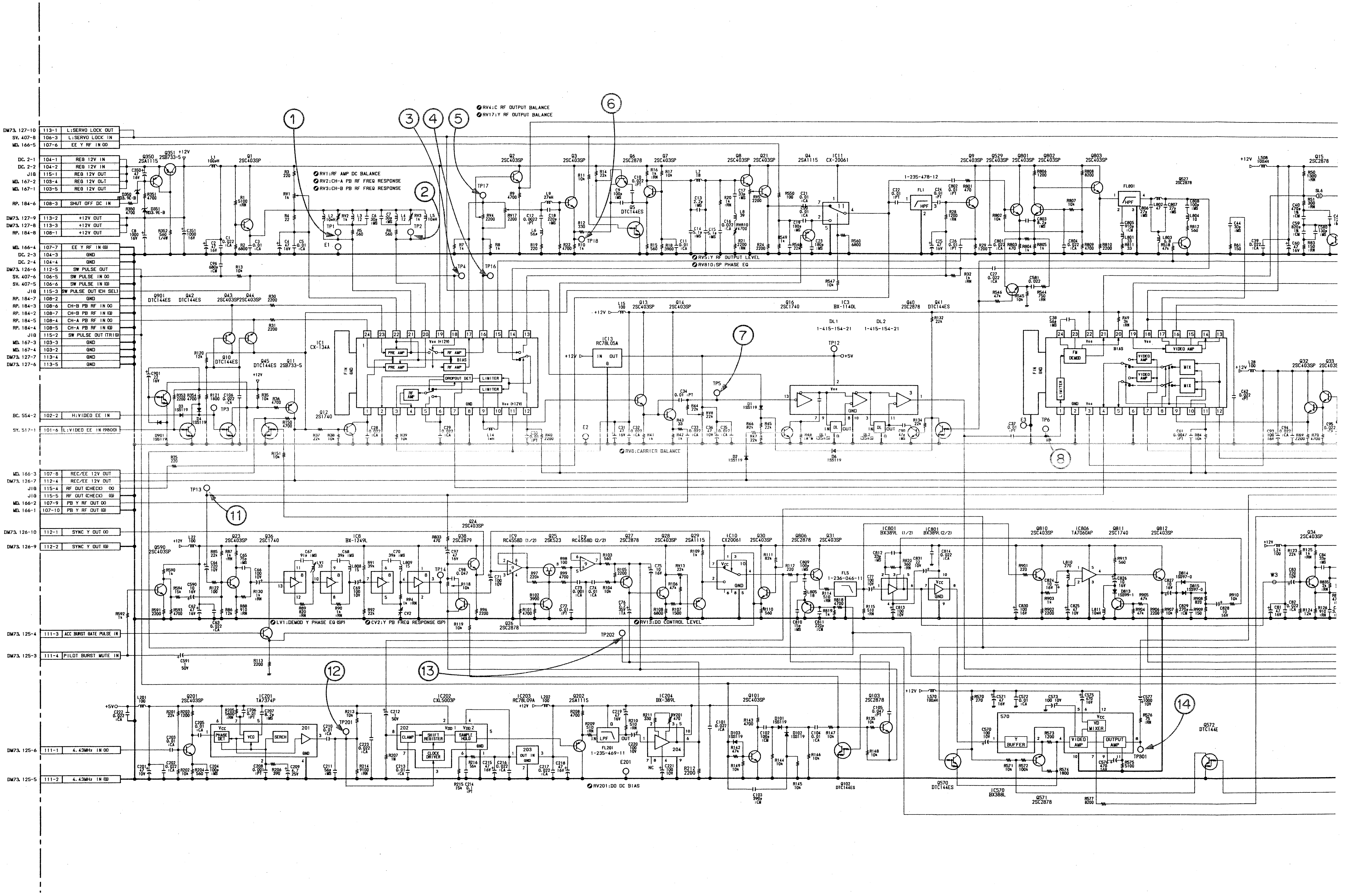
1	CP-136 Board
2	DM-73 Board
3	DM-72 Board
4	AA-16 Board
5	RM-66 Board
6	PH-5 Board
7	PH-5 Board
8	LM-13 Board
9	SE-46 Board
10	PTC-34 Board
11	PTC-30 Board
12	AU-124A Board
13	NR-31A Board
14	SV-112C Board
15	MD-60A Board
16	MC-28 Board
17	HP-42 Board
18	VR-80 Board
19	MT-53 Board
20	SW-315A Board
21	DUS-271 Board
22	Switching Regulator (UR-02)
23	DC-31P Board
24	PTC-33 Board
25	DUS-92 Board
26	RP-40C Board
27	HN-84 Board
28	DUS-147 Board
29	EC-32 Board
30	HN-130 Board
31	PH-5 Board
32	PH-5 Board
33	CC-37 Board
34	PD-40 Board
35	CC-36 Board
36	RM-39 Board
37	PTC-32 Board
38	DP-62 Board
39	LP-41 Board
40	KY-159A Board

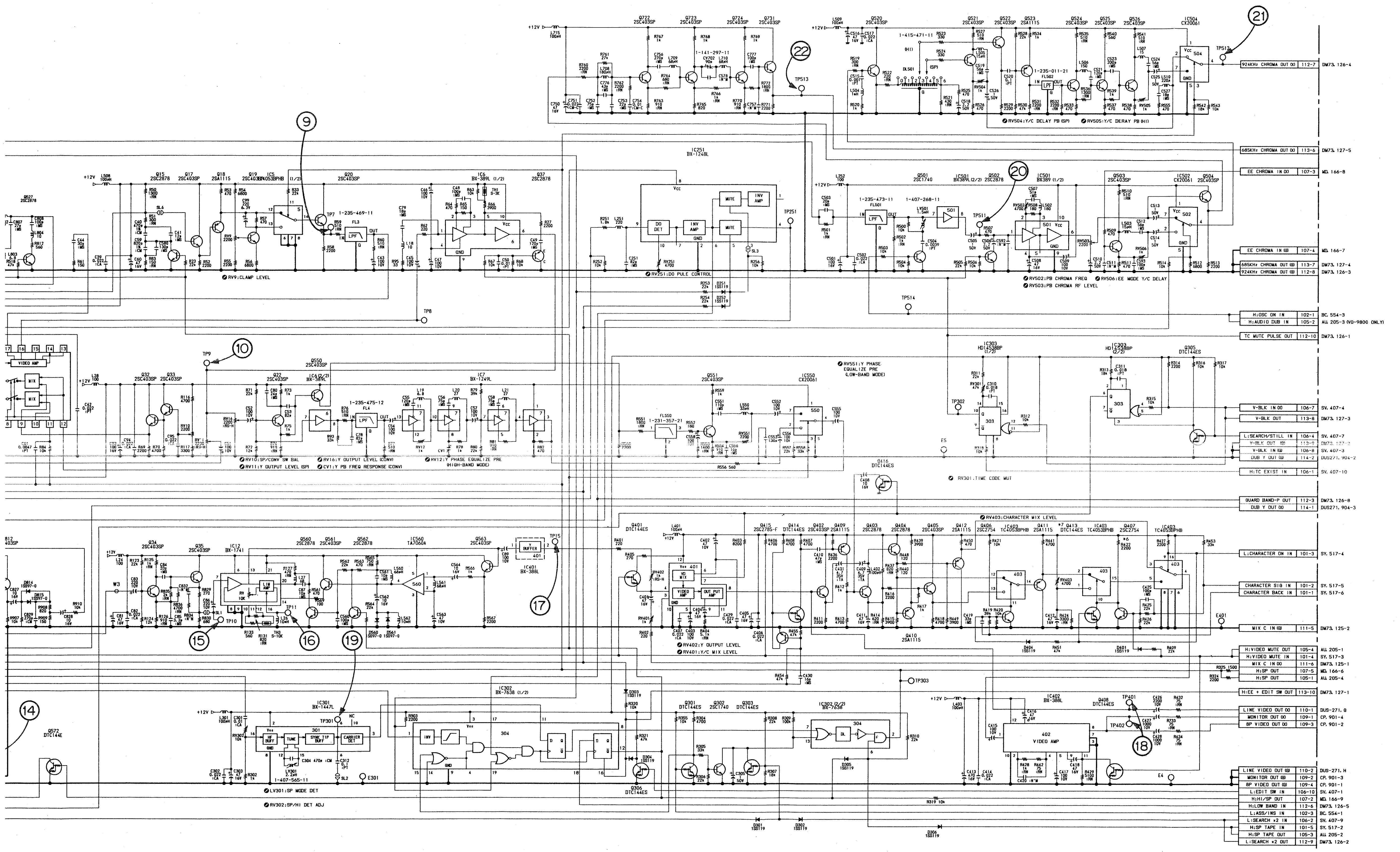
[BOTTOM VIEW]



41	AC-98 Board
42	PTC-35 Board
43	PT-9 Board
44	SY-141C Board
45	TG-22 Board
46	PD-41 Board
47	PTC-35 Board

DM-72: Y DEMODULATOR, SP DETECT, CHARACTER MIX


DM73. 127-10 113-1 L;SERVO LOCK OUT
SV. 407-8 106-3 L;SERVO LOCK IN
MD. 166-5 107-6 EE Y RF IN (X)
DC. 2-1 104-1 REG 12V IN
DC. 2-2 104-2 REG 12V IN
JIG 115-1 REG 12V OUT
MD. 167-2 103-4 REG 12V OUT
MD. 167-1 103-5 REG 12V OUT
RP. 184-6 108-3 SHUT OFF DC IN
DM73. 127-9 113-2 +12V OUT
DM73. 127-8 113-3 +12V OUT
RP. 184-8 108-1 +12V OUT
MD. 166-4 107-7 EE Y RF IN (G)
DC. 2-3 104-3 GND
DC. 2-4 104-4 GND
DM73. 126-6 112-5 SW PULSE OUT
SV. 407-6 106-5 SW PULSE IN (X)
SV. 407-5 106-6 SW PULSE IN (G)
JIG 115-3 SW PULSE OUT (CH SEL)
RP. 184-7 108-2 GND
RP. 184-3 108-6 CH-B PB RF IN (X)
RP. 184-2 108-7 CH-B PB RF IN (G)
RP. 184-5 108-4 CH-A PB RF IN (X)
RP. 184-4 108-5 CH-A PB RF IN (G)
JIG 115-2 SW PULSE OUT (TRIG)
MD. 167-3 103-3 GND
MD. 167-4 103-2 GND
DM73. 127-7 113-4 GND
DM73. 127-6 113-5 GND
BC. 554-2 102-2 H;VIDEO EE IN
SY. 517-1 101-6 L;VIDEO EE IN (9800)
MD. 166-3 107-8 REC/EE 12V OUT
DM73. 126-7 112-4 REC/EE 12V OUT
JIG 115-4 RF OUT (CHECK) (X)
JIG 115-5 RF OUT (CHECK) (G)
MD. 166-2 107-9 PB Y RF OUT (X)
MD. 166-1 107-10 PB Y RF OUT (G)
DM73. 126-10 112-1 SYNC Y OUT (X)
DM73. 126-9 112-2 SYNC Y OUT (G)
DM73. 125-4 111-3 ACC BURST GATE PULSE IN
DM73. 125-3 111-4 PILOT BURST MUTE IN
DM73. 125-6 111-1 4.43MHz IN (X)
DM73. 125-5 111-2 4.43MHz IN (G)
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑪ ⑫ ⑬ ⑭
RV1;RF AMP DC BALANCE
RV2;CH-A PB RF FREQ RESPONSE
RV3;CH-B PB RF FREQ RESPONSE
RV4;C RF OUTPUT BALANCE
RV17;Y RF OUTPUT BALANCE
RV5;Y RF OUTPUT LEVEL
RV810;SP PHASE EQ
RV6;CARRIER BALANCE
LV1;DEMOD Y PHASE EQ (SP)
CV2;Y PB FREQ RESPONSE (SP)
RV13;DO CONTROL LEVEL
RV201;DO DC BIAS
TP1 TP2 TP3 TP4 TP5 TP6 TP12 TP13 TP14 TP16 TP17 TP18 TP201 TP202 TP801
E1 E2 E3 E201 W3
IC1 CX-134A
PRE AMP
RF AMP
BIAS
DROPOUT DET
LIMITER
IC13 RC78L05A
IC11 CX-20061
IC3 BX-1140L
DL1 1-415-154-21
DL2 1-415-154-21
FL1 1-235-478-12
FL801 HPF
FM DEMOD
VIDEO AMP
MIX
IC8 BX-1249L
IC9 RC4558D (1/2)
IC9 RC4558D (2/2)
IC10 CX20061
IC801 BX389L (1/2)
IC801 BX389L (2/2)
FL5 1-236-046-11
IC806 TA7060AP
IC201 TA7374P
PHASE DET
VCO
SERCH
IC202 CXL5003P
CLAMP
SHIFT REGISTER
SAMPLE HOLD
CLOCK DRIVER
IC203 RC78L09A
FL201 1-235-469-11
LPF
IC204 BX-389L
IC570 BX388L
Y BUFFER
VIDEO AMP
VD MIXER
OUTPUT AMP
+12V
+5V


⑨
⑩
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⑮
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⑱
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⑳
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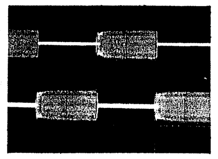
㉒
TP512
924KHz CHROMA OUT (X) | 112-7 | DM73, 126-4
685KHz CHROMA OUT (X) | 113-6 | DM73, 127-5
EE CHROMA IN (X) | 107-3 | MD, 166-8
EE CHROMA IN (G) | 107-4 | MD, 166-7
685KHz CHROMA OUT (G) | 113-7 | DM73, 127-4
924KHz CHROMA OUT (G) | 112-8 | DM73, 126-3
H;OSC ON IN | 102-1 | BC, 554-3
H;AUDIO DUB IN | 105-2 | AU, 205-3 (VO-9800 ONLY)
TC MUTE PULSE OUT | 112-10 | DM73, 126-1
V-BLK IN (X) | 106-7 | SV, 407-4
V-BLK OUT | 113-8 | DM73, 127-3
L:SEARCH/STILL IN | 106-4 | SV, 407-7
V-BLK OUT (G) | 113-9 | DM73, 127-2
V-BLK IN (G) | 106-8 | SV, 407-3
DUB Y OUT (G) | 114-2 | DUS271, 904-2
H:TC EXIST IN | 106-1 | SV, 407-10
GUARD BAND-P OUT | 112-3 | DM73, 126-8
DUB Y OUT (X) | 114-1 | DUS271, 904-3
L;CHARACTER ON IN | 101-3 | SY, 517-4
CHARACTER SIG IN | 101-2 | SY, 517-5
CHARACTER BACK IN | 101-1 | SY, 517-6
MIX C IN (G) | 111-5 | DM73, 125-2
H;VIDEO MUTE OUT | 105-4 | AU, 205-1
H;VIDEO MUTE IN | 101-4 | SY, 517-3
MIX C IN (X) | 111-6 | DM73, 125-1
H;SP OUT | 107-5 | MD, 166-6
H;SP OUT | 105-1 | AU, 205-4
H:EE + EDIT SW OUT | 113-10 | DM73, 127-1
LINE VIDEO OUT (X) | 110-1 | DUS-271, G
MONITOR OUT (X) | 109-1 | CP, 901-4
8P VIDEO OUT (X) | 109-3 | CP, 901-2
LINE VIDEO OUT (G) | 110-2 | DUS-271, H
MONITOR OUT (G) | 109-2 | CP, 901-3
8P VIDEO OUT (G) | 109-4 | CP, 901-1
L;EDIT SW IN | 106-10 | SV, 407-1
H;HI/SP OUT | 107-2 | MD, 166-9
H;LOW BAND IN | 112-6 | DM73, 126-5
L;ASS/INS IN | 102-3 | BC, 554-1
L:SEARCH ×2 IN | 106-2 | SV, 407-9
H;SP TAPE IN | 101-5 | SY, 517-2
H;SP TAPE OUT | 105-3 | AU, 205-2
L:SEARCH ×2 OUT | 112-9 | DM73, 126-2
RV9:CLAMP LEVEL
RV251:DO PULSE CONTROL
RV502:PB CHROMA FREQ
RV503:PB CHROMA RF LEVEL
RV506:EE MODE Y/C DELAY
RV504:Y/C DELAY PB (SP)
RV505:Y/C DERAY PB (HI)
RV10:SP/CONV SW BAL
RV11:Y OUTPUT LEVEL (SP)
RV16:Y OUTPUT LEVEL (CONV)
CV1:Y PB FREQ RESPONSE (CONV)
RV12:Y PHASE EQUALIZE PRE (HIGH-BAND MODE)
RV551:Y PHASE EQUALIZE PRE (LOW-BAND MODE)
RV301:TIME CODE MUT
RV403:CHARACTER MIX LEVEL
RV402:Y OUTPUT LEVEL
RV401:Y/C MIX LEVEL
LV301:SP MODE DET
RV302:SP/HI DET ADJ

DM-72

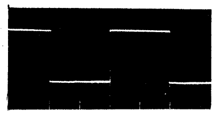
1-629-864-11
VO-9850P
VO-9800P

① TP1
② TP2
PB



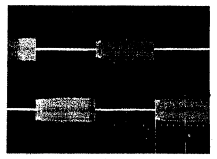
H; 10msec / div
V; 0.2V / div

③ TP4
PB



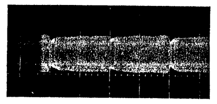
H; 10msec / div
V; 2V / div

④ TP16
⑤ TP17
PB



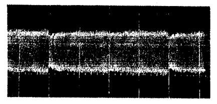
H; 10msec / div
V; 2V / div

⑥ TP18
PB



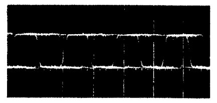
H; 10msec / div
V; 0.5V / div

⑦ TP5
PB



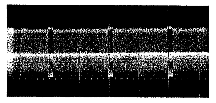
H; 10msec / div
V; 0.2V / div

⑧ TP6
PB



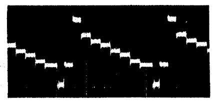
H; 50nsec / div
V; 1V / div

⑨ TP7
PB



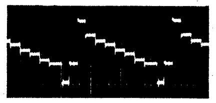
H; 10msec / div
V; 1 V / div

⑩ TP9
PB



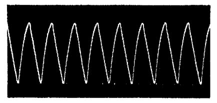
H; 20μsec / div
V; 0.5V / div

⑪ TP13
PB



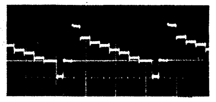
H; 20μsec / div
V; 0.5V / div

⑫ TP201
PB



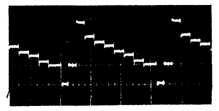
4.43 MHz
V; 0.2V / div

⑬ TP202
PB



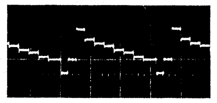
H; 20μsec / div
V; 0.5V / div

⑭ TP801
PB



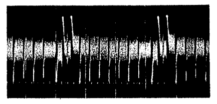
H; 20μsec / div
V; 0.5V / div

⑮ TP10
PB



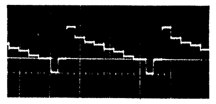
H; 20μsec / div
V; 0.5V / div

⑯ TP11
PB



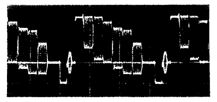
H; 20μsec / div
V; 0.2V / div

⑰ TP15
PB



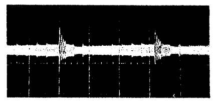
H; 20μsec / div
V; 0.2V / div

⑱ TP401
TP402
PB



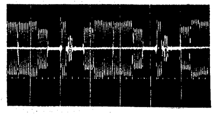
H; 20μsec / div
V; 1V / div

⑲ TP301
PB



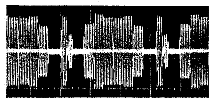
H; 10μsec / div
V; 0.05V / div

⑳ TP511
PB



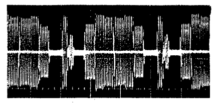
H; 20μsec / div
V; 0.1V / div

㉑ TP512
PB



H; 20μsec / div
V; 0.1V / div

㉒ TP513
PB

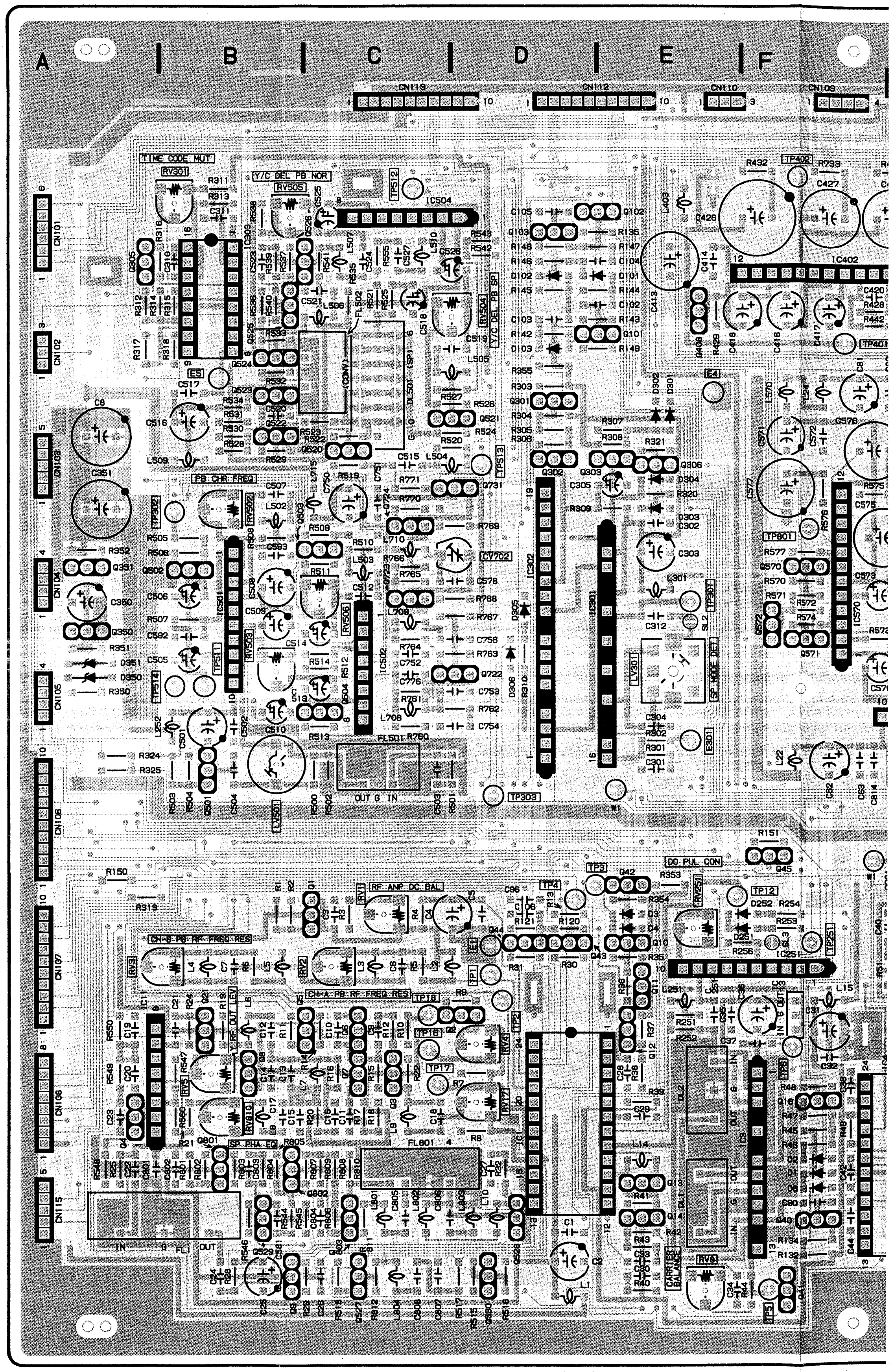


H; 20μsec / div
V; 0.1V / div

DM-72: Y DEMODULATOR, SP DETECT, CHARACTER MIX

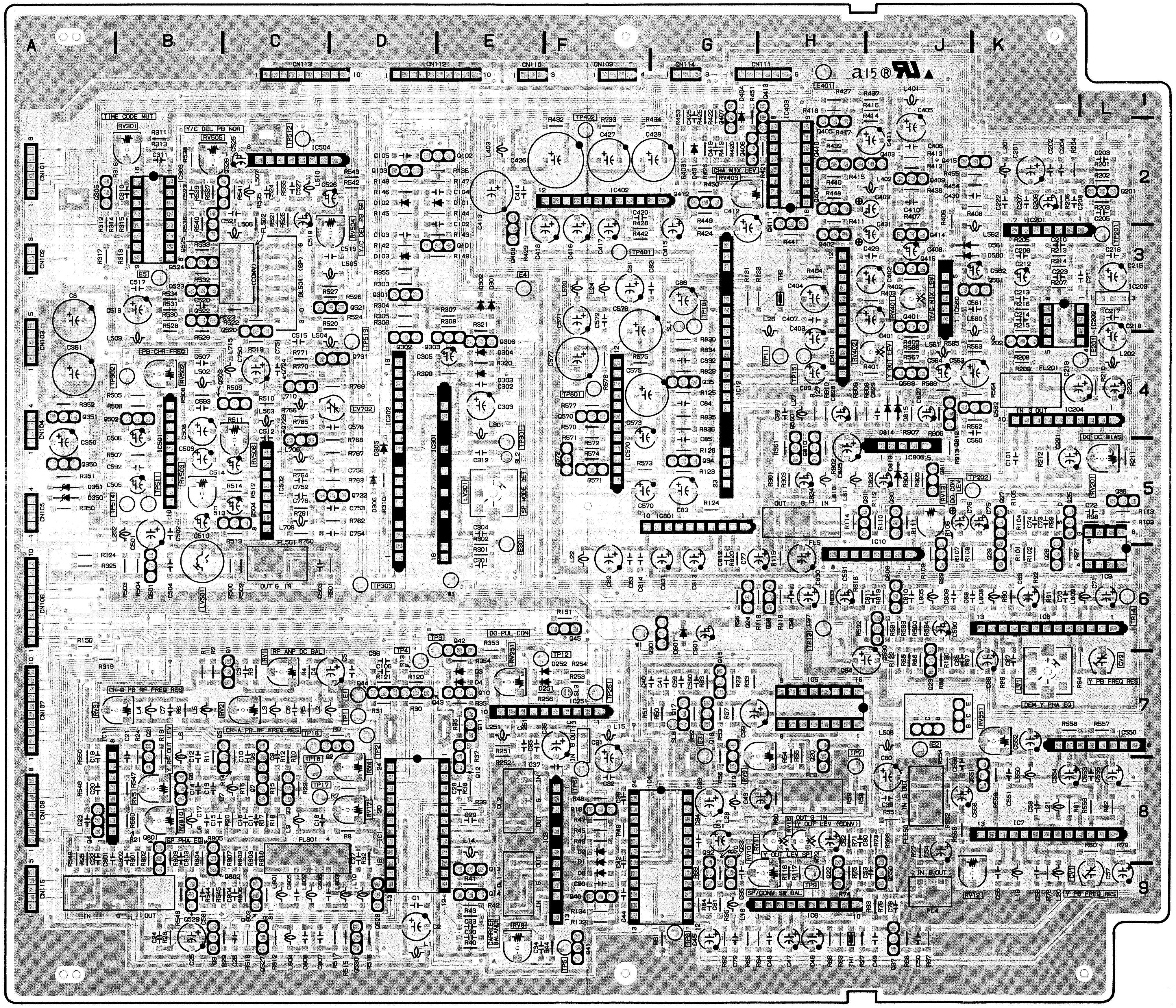
DM-72 (1-629-864-11) S

CN101	A-2
CN102	A-3
CN103	A-4
CN104	A-4
CN105	A-5
CN106	A-6
CN107	A-7
CN108	A-8
CN109	F-1
CN110	E-1
CN111	G-1
CN112	E-1
CN113	C-1
CN114	G-1
CN115	A-9
CV1	L-7
CV2	L-7
CV702	D-4
D1	F-8
D2	F-8
D3	E-7
D4	E-7
D6	F-9
D101	E-2
D102	D-2
D103	D-3
D251	F-7
D252	F-7
D301	E-3
D302	E-3
D303	E-4
D304	E-4
D305	D-5
D306	D-5
D350	A-5
D351	A-5
D401	G-2
D404	G-1
D560	J-3
D561	J-3
D813	J-5
D814	J-4
D815	J-4
D901	G-6
DL1	E-9
DL2	E-8
DL501	C-3
E1	D-7
E2	J-7
E3	G-8
E4	E-3
E5	B-3
E201	K-4
E301	E-5
E401	H-1
FL1	A-9
FL3	H-8
FL4	J-9
FL5	H-5
FL201	K-4
FL501	C-6
FL502	C-3
FL550	J-8
FL801	C-8
IC1	D-8
IC3	F-8
IC4	G-8
IC5	H-7
IC6	H-9
IC7	K-8
IC8	K-6
IC9	L-6
IC10	J-6
IC11	A-8
IC12	G-4
IC13	F-7
IC201	K-3
IC202	K-3
IC203	L-3
IC204	K-4
IC251	F-7
IC301	E-5
IC302	D-5
IC303	B-2
IC401	H-3
IC402	F-2
IC403	H-2
IC501	B-5
IC502	C-5
IC504	C-2
IC550	L-7
IC560	J-3
IC570	F-4
IC801	G-5
IC806	J-5
LV1	K-7
LV301	E-5
LV501	B-6
Q1	C-7
Q2	D-7
Q3	C-8
Q4	A-8
Q5	C-7
Q6	C-7
Q7	C-8
Q8	B-8
Q9	B-9
Q10	E-7
Q11	E-7
Q12	E-7
Q13	E-9
Q14	E-9
Q15	G-7
Q16	F-8
Q17	G-7
Q18	G-7
Q19	G-8
Q20	H-8
Q21	B-7
Q22	H-9
Q23	J-7
Q24	G-6
Q25	K-5
Q26	K-6
Q27	K-5
Q28	K-6
Q29	J-6
Q30	J-5
Q31	J-5
Q32	G-9
Q33	G-9
Q34	G-5
Q35	G-4
Q36	L-5
Q37	J-9
Q38	H-6
Q40	F-9
Q41	F-9
Q42	E-6
Q43	D-7
Q44	D-7
Q45	F-6
Q101	E-3
Q102	E-2
Q103	D-2
Q201	L-2
Q202	K-4
Q301	D-3
Q302	D-4
Q303	E-4
Q305	A-2
Q306	E-4
Q350	A-5
Q351	A-4
Q401	J-3
Q402	H-3
Q403	J-2
Q404	H-2
Q405	H-2
Q406	G-2
Q407	G-1
Q408	E-3
Q409	J-2
Q410	H-2
Q411	H-2
Q412	G-2
Q413	H-1
Q414	J-3
Q415	J-2
Q416	J-3
Q501	B-6
Q502	B-4
Q503	C-4
Q504	C-5
Q520	C-4
Q521	D-3
Q522	B-3
Q523	B-3
Q524	B-3
Q525	B-3
Q526	B-2
Q527	C-9
Q529	B-9
Q550	J-9
Q551	K-8
Q560	H-5
Q561	J-3
Q562	J-4
Q563	J-4
Q570	F-4
Q571	F-5
Q572	F-5
Q590	J-6
Q722	D-5
Q723	C-4
Q724	C-4
Q731	D-4
Q801	B-8
Q802	B-8
Q803	C-9
Q806	J-6
Q810	H-5
Q811	J-5
Q812	J-4
Q901	G-6
RV1	C-7
RV2	C-7
RV3	B-7
RV4	D-8
RV5	B-8
RV8	E-9
RV9	G-7
RV10	H-9
RV11	H-8
RV12	J-9
RV13	J-5
RV16	H-8
RV17	D-8
RV201	L-5
RV251	E-7
RV301	B-2
RV401	J-3
RV402	J-4
RV403	G-2
RV502	B-4
RV503	B-5
RV504	D-2
RV505	B-2
RV506	C-5
RV551	K-7
RV810	B-8
TP1	D-7
TP2	D-7
TP3	D-6
TP4	D-7
TP5	F-9
TP6	F-8
TP7	H-8
TP8	G-9
TP9	H-9
TP10	G-3
TP11	H-4
TP12	F-7
TP13	H-6
TP14	L-6
TP15	H-4
TP16	C-8
TP17	C-8
TP18	C-7
TP201	L-3
TP202	J-5
TP251	F-7
TP301	E-5
TP302	B-4
TP303	D-6
TP401	F-3
TP402	F-2
TP511	B-5
TP512	C-2
TP513	D-4
TP514	B-5
TP801	F-4



R, SP DETECT, CHARACTER MIX

Q21	B-7	Q527	C-9	TP12	F-7
Q22	H-9	Q529	B-9	TP13	H-6
Q23	J-7	Q550	J-9	TP14	L-6
Q24	G-6	Q551	K-8	TP15	H-4
Q25	K-5	Q560	H-5	TP16	C-8
Q26	K-6	Q561	J-3	TP17	C-8
Q27	K-5	Q562	J-4	TP18	C-7
Q28	K-6	Q563	J-4	TP201	L-3
Q29	J-6	Q570	F-4	TP202	J-5
Q30	J-5	Q571	F-5	TP251	F-7
Q31	J-5	Q572	F-5	TP301	E-5
Q32	G-9	Q590	J-6	TP302	B-4
Q33	G-9	Q722	D-5	TP303	D-6
Q34	G-5	Q723	C-4	TP401	F-3
Q35	G-4	Q724	C-4	TP402	F-2
Q36	L-5	Q731	D-4	TP511	B-5
Q37	J-9	Q801	B-8	TP512	C-2
Q38	H-6	Q802	B-8	TP513	D-4
Q40	F-9	Q803	C-9	TP514	B-5
Q41	F-9	Q806	J-6	TP801	F-4
Q42	E-6	Q810	H-5		
Q43	D-7	Q811	J-5		
Q44	D-7	Q812	J-4		
Q45	F-6	Q901	G-6		
Q101	E-3				
Q102	E-2	RV1	C-7		
Q103	D-2	RV2	C-7		
Q201	L-2	RV3	B-7		
Q202	K-4	RV4	D-8		
Q301	D-3	RV5	B-8		
Q302	D-4	RV8	E-9		
Q303	E-4	RV9	G-7		
Q305	A-2	RV10	H-9		
Q306	E-4	RV11	H-8		
Q350	A-5	RV12	J-9		
Q351	A-4	RV13	J-5		
Q401	J-3	RV16	H-8		
Q402	H-3	RV17	D-8		
Q403	J-2	RV201	L-5		
Q404	H-2	RV251	E-7		
Q405	H-2	RV301	B-2		
Q406	G-2	RV401	J-3		
Q407	G-1	RV402	J-4		
Q408	E-3	RV403	G-2		
Q409	J-2	RV502	B-4		
Q410	H-2	RV503	B-5		
Q411	H-2	RV504	D-2		
Q412	G-2	RV505	B-2		
Q413	H-1	RV506	C-5		
Q414	J-3	RV551	K-7		
Q415	J-2	RV810	B-8		
Q416	J-3				
Q501	B-6	TP1	D-7		
Q502	B-4	TP2	D-7		
Q503	C-4	TP3	D-6		
Q504	C-5	TP4	D-7		
Q520	C-4	TP5	F-9		
Q521	D-3	TP6	F-8		
Q522	B-3	TP7	H-8		
Q523	B-3	TP8	G-9		
Q524	B-3	TP9	H-9		
Q525	B-3	TP10	G-3		
Q526	B-2	TP11	H-4		


A
B
C
D
E
F
G
H
J
K
L
1
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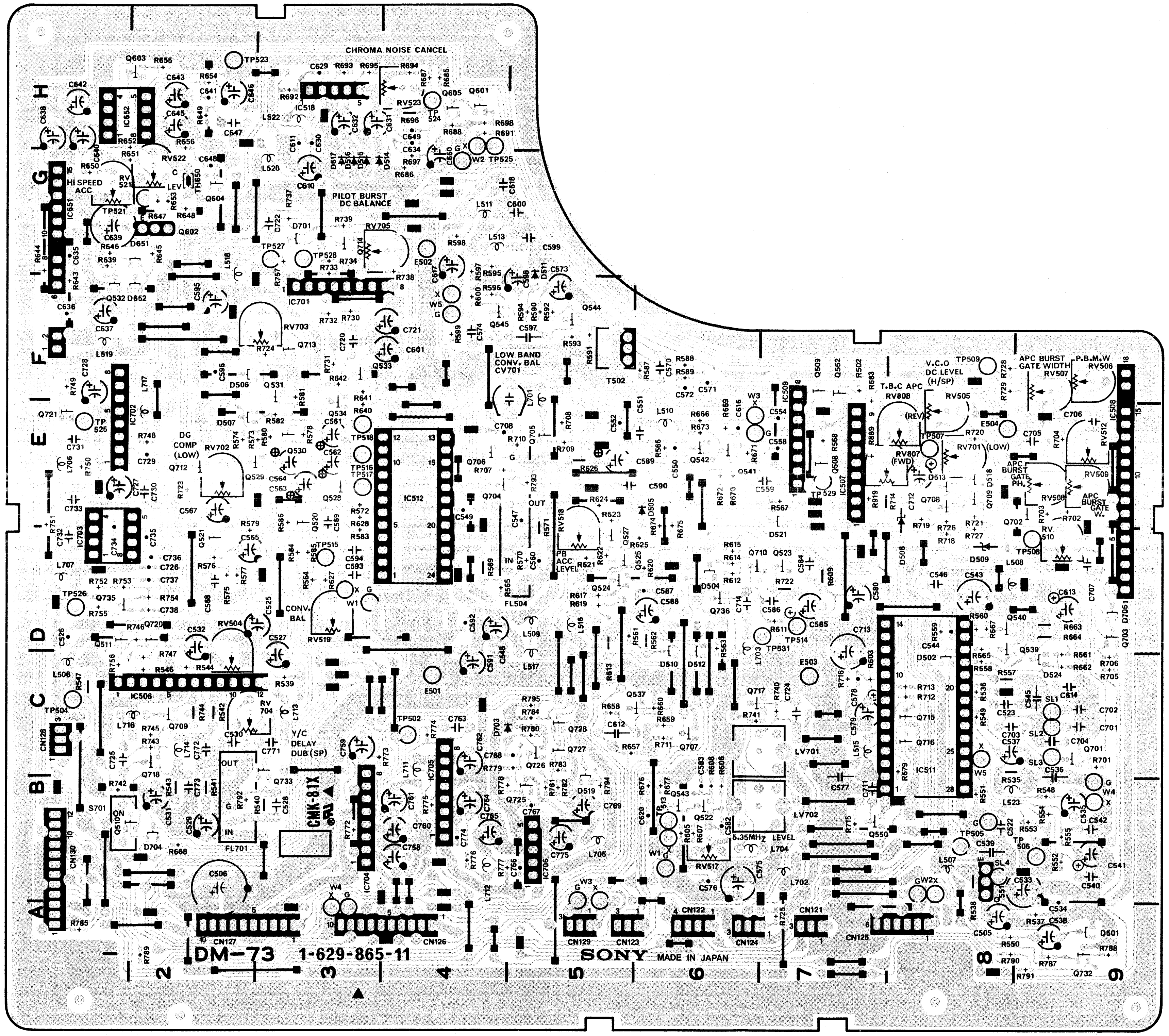
4
5
6
7
8
9
CN113
CN112
CN110
CN109
CN114
CN111
IC402
IC403
IC201
IC204
IC801
IC5
IC6
IC7
IC8
IC550
FL201
FL501
FL801
FL1
FL3
FL4
FL5

DM-72

—SOLDERING SIDE—
1-629-864-11
VO-9850P
VO-9800P

DM-73: C PB PROCESSOR


CHROMA NOISE CANCEL
PILOT BURST DC BALANCE
HI SPEED ACC
LOW BAND CONV. BAL
DG COMP (LOW)
CONV. BAL
PB ACC LEVEL
V.C.O DC LEVEL (H/SP)
T.B.C APC
APC BURST GATE WIDTH
P.B.M.W
APC BURST GATE PH.
APC BURST GATE W.
Y/C DELAY DUB (SP)
5.35MHz LEVEL
CMK-81X
DM-73 1-629-865-11
SONY MADE IN JAPAN
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9

DM-73

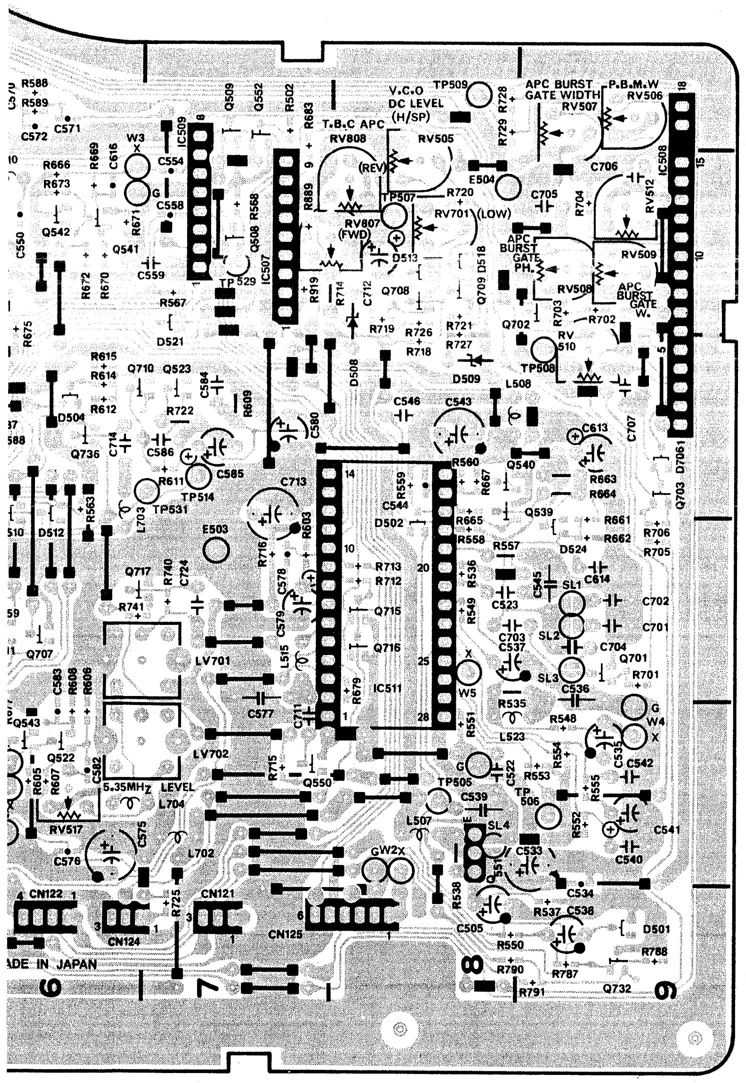
—SOLDERING SIDE—
1-629-865-11
VO-9850P
VO-9800P

DM-73 (1-629-865-11) C

CN121	A-7
CN122	A-6
CN123	A-5
CN124	A-6
CN125	A-8
CN126	A-4
CN127	A-2
CN128	C-1
CN129	A-5
CN130	B-1
CV701	F-4
D505	E-6
D508	E-8
D509	D-8
D511	G-5
D514	G-3
D515	G-3
D516	G-3
D517	G-3
D703	C-4
E501	C-4
E502	G-4
E503	C-7
E504	E-8
FL504	E-4
FL701	B-2
IC506	C-2
IC507	E-7
IC508	E-9
IC509	E-7
IC511	C-8
IC512	D-4
IC518	H-3
IC651	G-1
IC652	H-1
IC701	F-3
IC702	E-1
IC703	D-1
IC704	B-3
IC705	B-4
IC706	B-5
LV701	C-6
LV702	B-6
RV504	D-2
RV505	F-8
RV506	F-9
RV507	F-9
RV508	E-9
RV509	E-9
RV510	D-9
RV512	E-9
RV517	B-6
RV518	D-5
RV519	D-3
RV521	G-1
RV522	H-2
RV523	H-4
RV701	E-8
RV702	E-2
RV703	F-3
RV704	C-2
RV705	G-3
RV807	E-7
RV808	E-8
S701	B-1
T502	F-5
TP502	C-4
TP504	C-1
TP505	B-8
TP506	B-9
TP507	E-8
TP508	E-9
TP509	F-8
TP513	B-6
TP514	D-7
TP515	D-3
TP516	E-3
TP517	E-3
TP518	E-3
TP521	G-2
TP523	H-2
TP524	H-4
TP525	G-4
TP526	D-1
TP527	G-3
TP528	G-3
TP529	E-7
TP530	E-1
TP531	D-7

DM-73 (1-629-86

D501	A-9
D502	C-8
D504	D-6
D506	F-2
D507	E-2
D510	C-6
D512	C-6
D513	E-8
D518	E-8
D519	B-5
D521	E-7
D524	C-9
D651	G-2
D652	F-2
D701	G-3
D704	B-2
D706	D-9
Q508	E-7
Q509	F-7
Q510	B-1
Q511	D-1
Q520	E-3
Q521	D-2
Q522	B-6
Q523	D-7
Q524	D-5
Q525	D-5
Q527	D-5
Q528	E-3
Q529	E-2
Q530	E-3
Q531	F-3
Q532	F-1
Q533	F-3
Q534	E-3
Q537	C-6
Q539	D-8
Q540	D-8
Q541	E-6
Q542	E-6
Q543	B-6
Q544	F-5
Q545	F-4
Q550	B-7
Q601	H-4
Q602	G-2
Q603	H-2
Q604	G-2
Q605	H-4
Q701	C-9
Q702	E-9
Q703	D-9
Q704	E-4
Q705	E-5
Q706	E-4
Q707	C-6
Q708	E-8
Q709	E-8
Q710	D-6
Q712	E-2
Q713	F-3
Q714	G-3



DM-73

—SOLDERING SIDE—
1-629-865-11
VO-9850P
VO-9800P

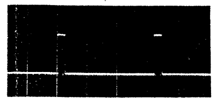
DM-73 (1-629-865-11) C

CN121	A-7
CN122	A-6
CN123	A-5
CN124	A-6
CN125	A-8
CN126	A-4
CN127	A-2
CN128	C-1
CN129	A-5
CN130	B-1
CV701	F-4
D505	E-6
D508	E-8
D509	D-8
D511	G-5
D514	G-3
D515	G-3
D516	G-3
D517	G-3
D703	C-4
E501	C-4
E502	G-4
E503	C-7
E504	E-8
FL504	E-4
FL701	B-2
IC506	C-2
IC507	E-7
IC508	E-9
IC509	E-7
IC511	C-8
IC512	D-4
IC518	H-3
IC651	G-1
IC652	H-1
IC701	F-3
IC702	E-1
IC703	D-1
IC704	B-3
IC705	B-4
IC706	B-5
LV701	C-6
LV702	B-6
RV504	D-2
RV505	F-8
RV506	F-9
RV507	F-9
RV508	E-9
RV509	E-9
RV510	D-9
RV512	E-9
RV517	B-6
RV518	D-5
RV519	D-3
RV521	G-1
RV522	H-2
RV523	H-4
RV701	E-8
RV702	E-2
RV703	F-3
RV704	C-2
RV705	G-3
RV807	E-7
RV808	E-8
S701	B-1
T502	F-5
TP502	C-4
TP504	C-1
TP505	B-8
TP506	B-9
TP507	E-8
TP508	E-9
TP509	F-8
TP513	B-6
TP514	D-7
TP515	D-3
TP516	E-3
TP517	E-3
TP518	E-3
TP521	G-2
TP523	H-2
TP524	H-4
TP525	G-4
TP526	D-1
TP527	G-3
TP528	G-3
TP529	E-7
TP530	E-1
TP531	D-7

DM-73 (1-629-865-11) S

D501	A-9
D502	C-8
D504	D-6
D506	F-2
D507	E-2
D510	C-6
D512	C-6
D513	E-8
D518	E-8
D519	B-5
D521	E-7
D524	C-9
D651	G-2
D652	F-2
D701	G-3
D704	B-2
D706	D-9
Q508	E-7
Q509	F-7
Q510	B-1
Q511	D-1
Q520	E-3
Q521	D-2
Q522	B-6
Q523	D-7
Q524	D-5
Q525	D-5
Q527	D-5
Q528	E-3
Q529	E-2
Q530	E-3
Q531	F-3
Q532	F-1
Q533	F-3
Q534	E-3
Q537	C-6
Q539	D-8
Q540	D-8
Q541	E-6
Q542	E-6
Q543	B-6
Q544	F-5
Q545	F-4
Q550	B-7
Q601	H-4
Q602	G-2
Q603	H-2
Q604	G-2
Q605	H-4
Q701	C-9
Q702	E-9
Q703	D-9
Q704	E-4
Q705	E-5
Q706	E-4
Q707	C-6
Q708	E-8
Q709	E-8
Q710	D-6
Q712	E-2
Q713	F-3
Q714	G-3
Q715	C-8
Q716	C-8
Q717	C-6
Q718	C-2
Q719	C-2
Q720	D-2
Q721	E-1
Q725	B-5
Q726	C-5
Q727	C-5
Q728	C-5
Q732	A-9
Q733	C-3
Q735	D-1
Q736	D-6

① TP505
PB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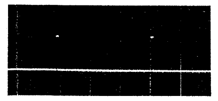
V ; 5V / div

② TP506
PB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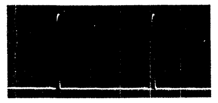
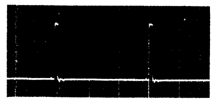
V ; 5V / div

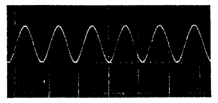
③ TP509
PB


H ; 20μsec / div
V ; 2V / div

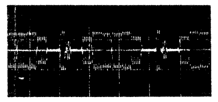
④ TP508
PB


H ; 20μsec / div
V ; 2V / div

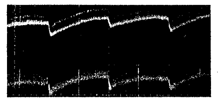
⑤ TP529
PB


4.43MHz
V ; 0.5V / div

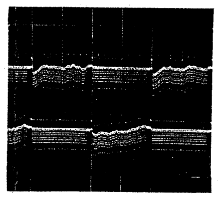
⑥ TP515
PB


H ; 20μsec / div
V ; 0.5V / div

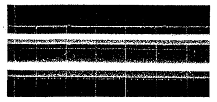
⑦ TP516
TP517
REC


H ; 10msec / div
V ; 0.02V / div

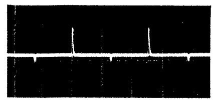
PB


H ; 10μsec / div
V ; 0.2V / div

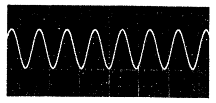
⑧ TP530
PB


H ; 20μsec / div
V ; 0.5V / div

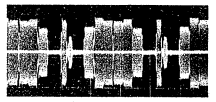
⑨ TP526
PB


H ; 50μsec / div
V ; 0.5V / div

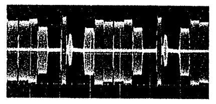
⑩ TP513
PB


5.35MHz
V ; 0.5V / div

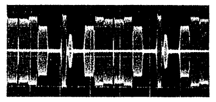
⑪ TP502
PB


H ; 20μsec / div
V ; 0.1V / div

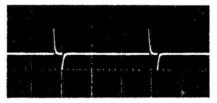
⑫ TP504
PB


H ; 20μsec / div
V ; 0.5V / div

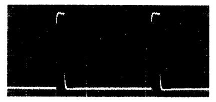
⑬ TP518
PB


H ; 20μsec / div
V ; 0.2V / div

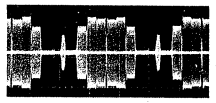
⑭ TP527
PB


H ; 20μsec / div
V ; 0.2V / div

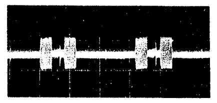
⑮ TP528
PB


H ; 20μsec / div
V ; 2V / div

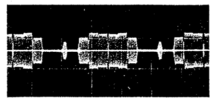
⑯ TP523
PB


H ; 20μsec / div
V ; 0.2V / div

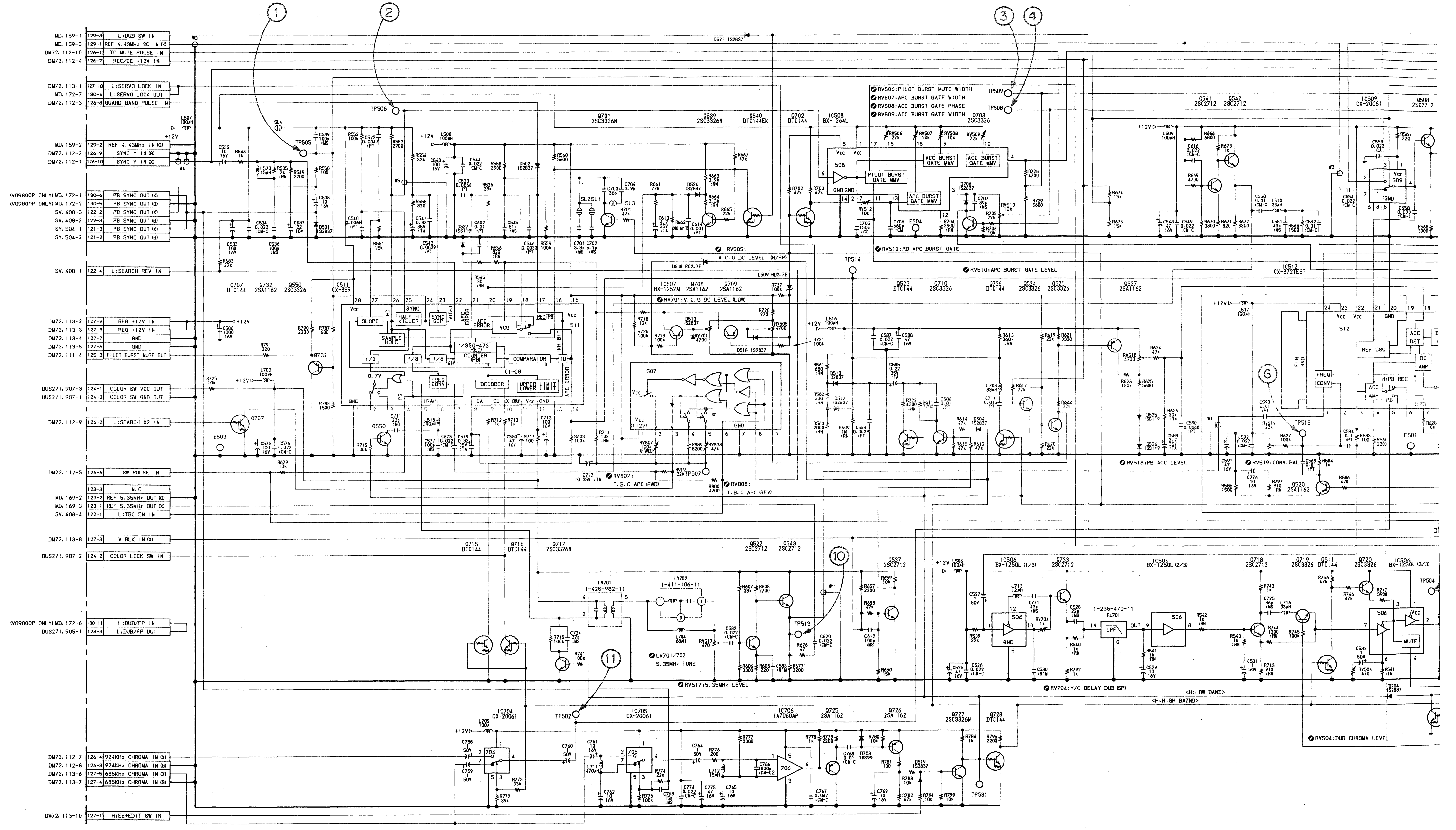
⑰ TP524
PB


H ; 20μsec / div
V ; 0.02V / div

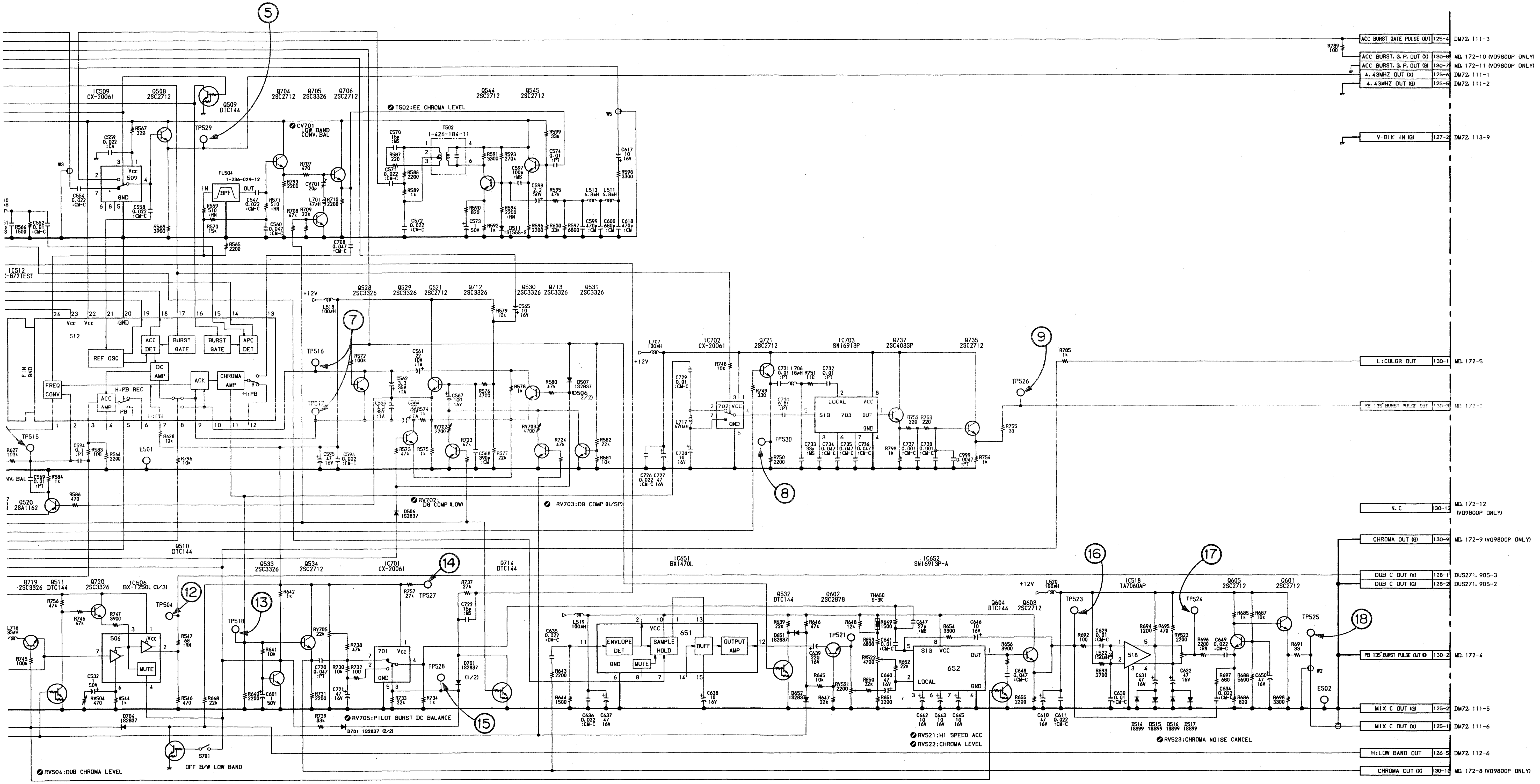
⑱ TP525
PB


H ; 20μsec / div
V ; 0.5V / div

DM-73: C PB PROCESSOR



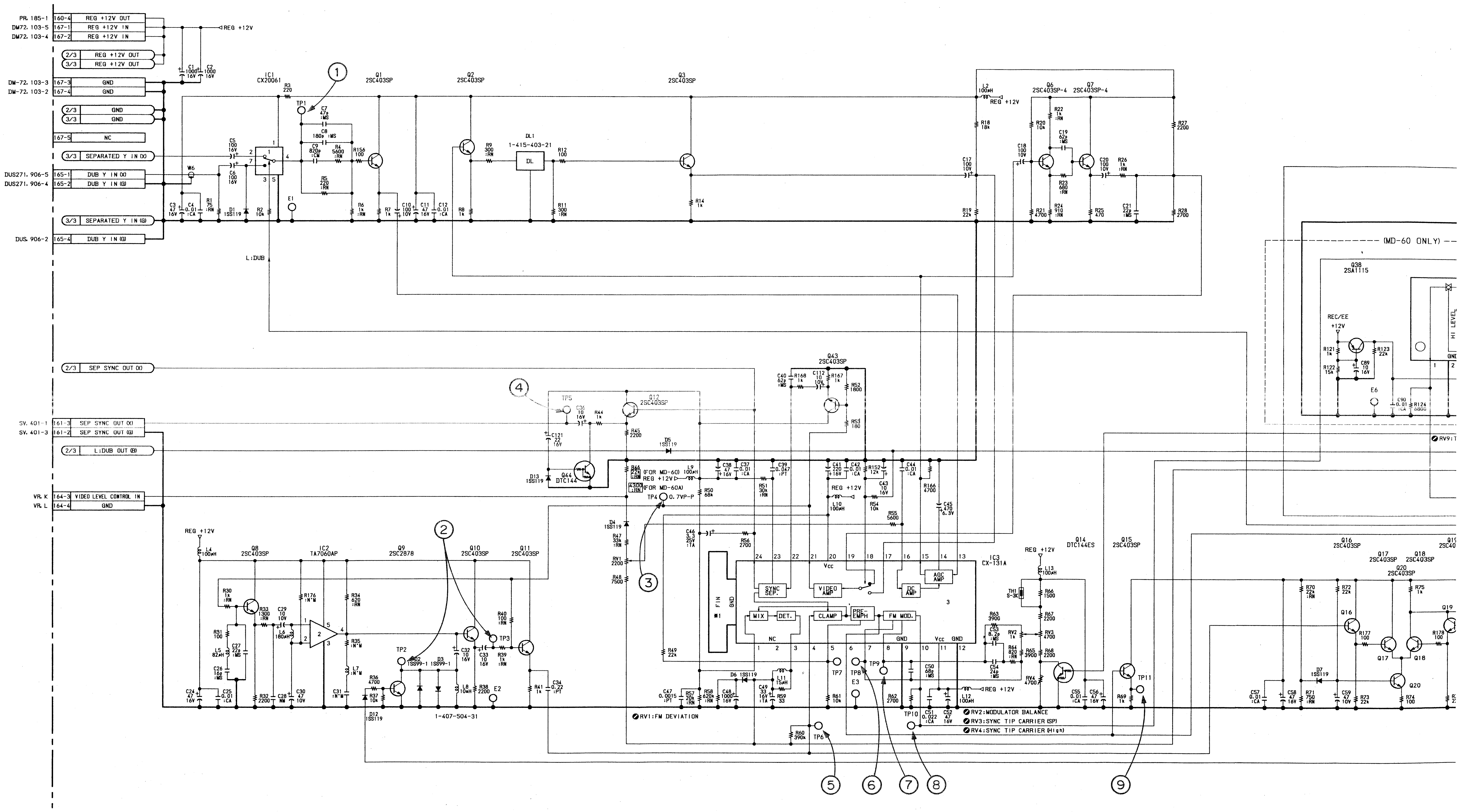
MD. 159-1 129-3 L:DUB SW IN
MD. 159-3 129-1 REF 4.43MHz SC IN (X)
DM72. 112-10 126-1 TC MUTE PULSE IN
DM72. 112-4 126-7 REC/EE +12V IN
DM72. 113-1 127-10 L:SERVO LOCK IN
MD. 172-7 130-4 L:SERVO LOCK OUT
DM72. 112-3 126-8 GUARD BAND PULSE IN
MD. 159-2 129-2 REF 4.43MHz IN (G)
DM72. 112-2 126-9 SYNC Y IN (G)
DM72. 112-1 126-10 SYNC Y IN (X)
(VO9800P ONLY) MD. 172-1 130-6 PB SYNC OUT (X)
(VO9800P ONLY) MD. 172-2 130-5 PB SYNC OUT (G)
SV. 408-3 122-2 PB SYNC OUT (X)
SV. 408-2 122-3 PB SYNC OUT (G)
SY. 504-1 121-3 PB SYNC OUT (X)
SY. 504-2 121-2 PB SYNC OUT (G)
SV. 408-1 122-4 L:SEARCH REV IN
DM72. 113-2 127-9 REG +12V IN
DM72. 113-3 127-8 REG +12V IN
DM72. 113-4 127-7 GND
DM72. 113-5 127-6 GND
DM72. 111-4 125-3 PILOT BURST MUTE OUT
DUS271. 907-3 124-1 COLOR SW VCC OUT
DUS271. 907-1 124-3 COLOR SW GND OUT
DM72. 112-9 126-2 L:SEARCH X2 IN
DM72. 112-5 126-6 SW PULSE IN
123-3 N.C
MD. 169-2 123-2 REF 5.35MHz OUT (G)
MD. 169-3 123-1 REF 5.35MHz OUT (X)
SV. 408-4 122-1 L:TBC EN IN
DM72. 113-8 127-3 V BLK IN (X)
DUS271. 907-2 124-2 COLOR LOCK SW IN
(VO9800P ONLY) MD. 172-6 130-11 L:DUB/FP IN
DUS271. 905-1 128-3 L:DUB/FP OUT
DM72. 112-7 126-4 924KHz CHROMA IN (X)
DM72. 112-8 126-3 924KHz CHROMA IN (G)
DM72. 113-6 127-5 685KHz CHROMA IN (X)
DM72. 113-7 127-4 685KHz CHROMA IN (G)
DM72. 113-10 127-1 H:EE+EDIT SW IN
① ② ③ ④ ⑥ ⑩ ⑪
TP505 TP506 TP509 TP508 TP514 TP515 TP507 TP513 TP502 TP531 TP504
RV506:PILOT BURST MUTE WIDTH
RV507:APC BURST GATE WIDTH
RV508:ACC BURST GATE PHASE
RV509:ACC BURST GATE WIDTH
RV505: V.C.O DC LEVEL (H/SP)
RV512:PB APC BURST GATE
RV510:APC BURST GATE LEVEL
RV701:V.C.O DC LEVEL (LOW)
RV807: T.B.C APC (FWD)
RV808: T.B.C APC (REV)
RV518:PB ACC LEVEL
RV519:CONV. BAL
LV701/702 5.35MHz TUNE
RV517:5.35MHz LEVEL
RV704:Y/C DELAY DUB (SP)
RV504:DUB CHROMA LEVEL
<H:LOW BAND>
<H:HIGH BAZND>
IC511 CX-859
IC508 BX-1264L
IC507 BX-1252AL
IC509 CX-20061
IC512 CX-872TEST
IC506 BX-1250L (1/3)
IC506 BX-1250L (2/3)
IC506 BX-1250L (3/3)
IC704 CX-20061
IC705 CX-20061
IC706 TA7060AP
LY701 1-425-982-11
LY702 1-411-106-11
FL701 1-235-470-11
SLOPE
SAMPLE HOLD
HALF H KILLER
SYNC SEP
AFC ERROR
VCO
1/350-473 (REC) COUNTER (PB)
COMPARATOR
DECODER
UPPER LIMIT LOWER LIMIT
FREQ CONV
PILOT BURST GATE MMV
ACC BURST GATE MMV
APC BURST GATE MMV
REF OSC
ACC DET
ACC AMP
DC AMP
H:PB REC
LPF
MUTE


IC509 CX-20061
Q508 2SC2712
Q509 DTC144
TP529
Q704 2SC2712
Q705 2SC3326
Q706 2SC2712
CV701 LOW BAND CONV. BAL
FL504 1-236-029-12
BPF
Q544 2SC2712
Q545 2SC2712
T502:EE CHROMA LEVEL
T502 1-426-184-11
IC512
IC512 CX-872TEST
S12
REF OSC
ACC DET
BURST GATE
APC DET
DC AMP
ACK
CHROMA AMP
FREQ CONV
ACC AMP
H:PB REC
H:PB
Q528 2SC3326
Q529 2SC3326
Q521 2SC2712
Q712 2SC3326
Q530 2SC3326
Q713 2SC3326
Q531 2SC3326
TP516
TP517
TP515
E501
Q520 2SA1162
RV702: DG COMP (LOW)
RV703:DG COMP (H/SP)
D504 1S2837
D507 1S2837
IC702 CX-20061
Q721 2SC2712
IC703 SN16913P
Q737 2SC403SP
Q735 2SC2712
S10 703
LOCAL
TP530
TP526
L:COLOR OUT
PB 135° BURST PULSE OUT
ACC BURST GATE PULSE OUT
ACC BURST. G. P. OUT (X)
ACC BURST. G. P. OUT (G)
4. 43MHZ OUT (X)
4. 43MHZ OUT (G)
V-BLK IN (G)
N. C
CHROMA OUT (G)
DUB C OUT (X)
DUB C OUT (G)
PB 135° BURST PULSE OUT (G)
MIX C OUT (G)
MIX C OUT (X)
H:LOW BAND OUT
CHROMA OUT (X)
DM72. 111-3
MD. 172-10 (VO9800P ONLY)
MD. 172-11 (VO9800P ONLY)
DM72. 111-1
DM72. 111-2
DM72. 113-9
MD. 172-5
MD. 172-12 (VO9800P ONLY)
MD. 172-9 (VO9800P ONLY)
DUS271. 905-3
DUS271. 905-2
MD. 172-4
DM72. 111-5
DM72. 111-6
DM72. 112-6
MD. 172-8 (VO9800P ONLY)
Q510 DTC144
Q719 2SC3326
Q511 DTC144
Q720 2SC3326
IC506 BX-1250L (3/3)
S06
MUTE
TP504
TP518
Q533 2SC3326
Q534 2SC2712
IC701 CX-20061
TP527
TP528
Q714 DTC144
RV705:PILOT BURST DC BALANCE
D701 1S2837 (2/2)
RV504:DUB CHROMA LEVEL
S701
OFF B/W LOW BAND
IC651 BX1470L
ENVLOPE DET
SAMPLE HOLD
BUFF
OUTPUT AMP
MUTE
651
IC652 SN16913P-A
Q532 DTC144
Q602 2SC2878
TH650 S-3K
TP521
S10 VCC 652 LOCAL GND OUT
Q604 DTC144
Q603 2SC2712
RV521:HI SPEED ACC
RV522:CHROMA LEVEL
IC518 TA7060AP
518
TP523
TP524
Q605 2SC2712
Q601 2SC2712
TP525
E502
RV523:CHROMA NOISE CANCEL
D514 1SS99
D515 1SS99
D516 1SS99
D517 1SS99
5
7
8
9
12
13
14
15
16
17
18

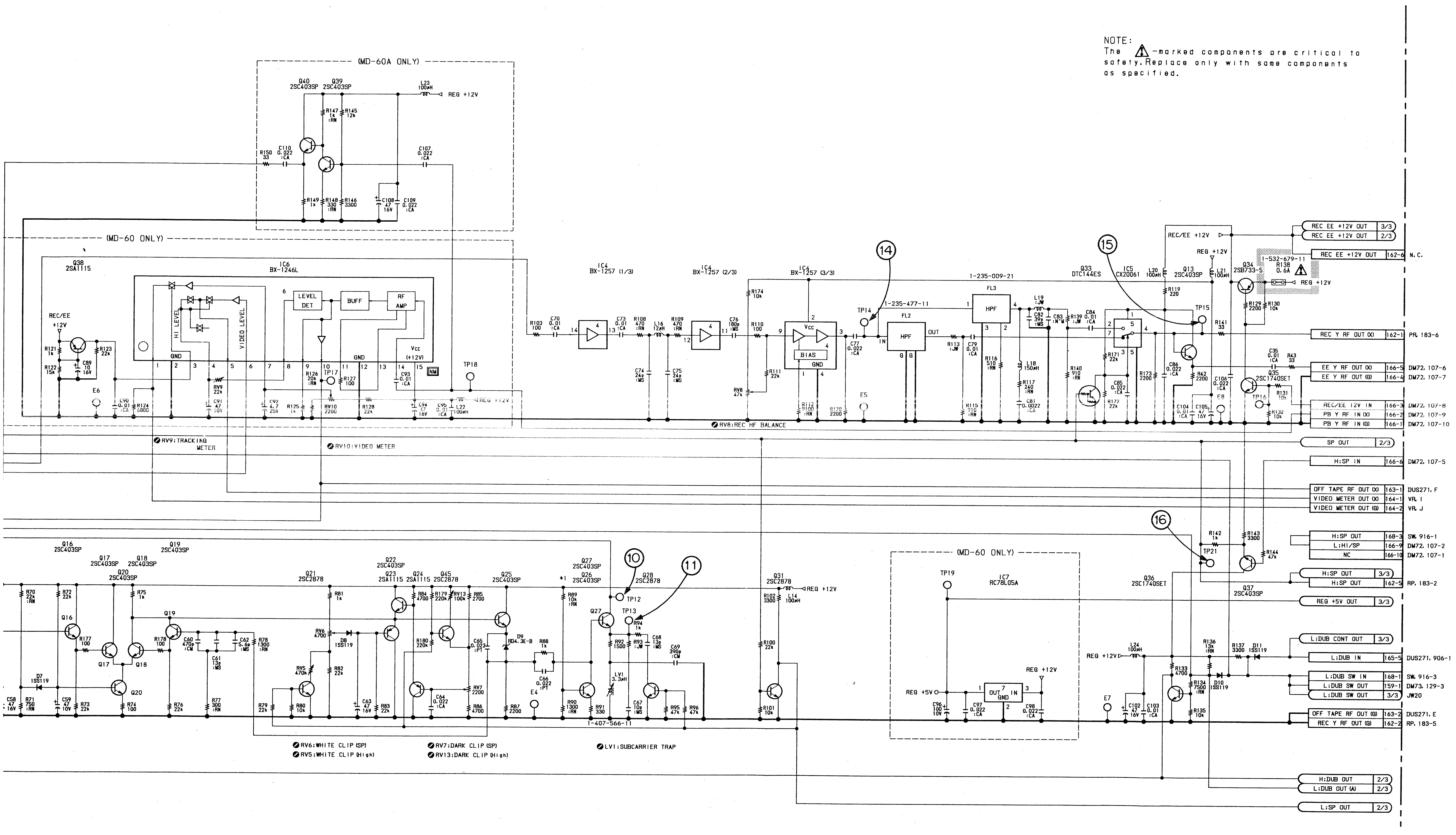
DM-73

1-629-865-11
VO-9850P
VO-9800P

MD-60A(1/3): Y MODULATOR, METER DRIVE


PR. 185-1
DM72. 103-5
DM72. 103-4
REG +12V OUT
REG +12V IN
REG +12V
GND
NC
SEPARATED Y IN (X)
DUB Y IN (X)
DUB Y IN (G)
SEPARATED Y IN (G)
DUS271. 906-5
DUS271. 906-4
DUS. 906-2
L:DUB
SEP SYNC OUT (X)
SEP SYNC OUT (G)
L:DUB OUT (B)
SV. 401-1
SV. 401-3
VIDEO LEVEL CONTROL IN
VR. K
VR. L
IC1 CX20061
Q1 2SC403SP
Q2 2SC403SP
Q3 2SC403SP
DL1 1-415-403-21
DL
TP1
E1
W6
L2 100µH
Q6 2SC403SP-4
Q7 2SC403SP-4
(MD-60 ONLY)
Q38 2SA1115
REC/EE +12V
HI LEVEL
E6
RV9
Q43 2SC403SP
Q12 2SC403SP
TP5
Q44 DTC144
D13 1SS119
D5 1SS119
L9 100µH
(FOR MD-60)
REG +12V
(FOR MD-60A)
TP4 0.7VP-P
RV1 2200
IC3 CX-131A
SYNC SEP.
VIDEO AMP
DC AMP
AGC AMP
MIX
DET.
CLAMP
PRE-EMPH
FM MOD.
Vcc
GND
NC
TP6
TP7
TP8
TP9
TP10
E3
REG +12V
Q8 2SC403SP
IC2 TA7060AP
Q9 2SC2878
Q10 2SC403SP
Q11 2SC403SP
TP2
TP3
E2
1-407-504-31
Q14 DTC144ES
Q15 2SC403SP
TP11
TH1 S-3K
RV2:MODULATOR BALANCE
RV3:SYNC TIP CARRIER (SP)
RV4:SYNC TIP CARRIER (High)
RV1:FM DEVIATION
Q16 2SC403SP
Q17 2SC403SP
Q18 2SC403SP
Q20 2SC403SP
D7 1SS119
①
②
③
④
⑤
⑥
⑦
⑧
⑨

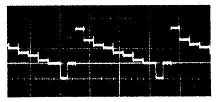
NOTE:
The ⚠ -marked components are critical to safety. Replace only with same components as specified.


(MD-60A ONLY)
Q40 2SC403SP
Q39 2SC403SP
L23 100μH
REG +12V
R147 1k :RN
R145 12k
R150 33
C110 0.022 :CA
C107 0.022 :CA
R149 1k
R148 330 :RN
R146 3300
C108 47 16V
C109 0.022 :CA
(MD-60 ONLY)
Q38 2SA1115
IC6 BX-1246L
LEVEL DET
BUFF
RF AMP
HI LEVEL
VIDEO LEVEL
GND
Vcc (+12V)
REC/EE +12V
R121 1k
R122 15k
R123 22k
C89 10 16V
E6
C90 0.01 :CA
R124 6800
RV9 22k
C91 47 10V
C92 4.7 25V
R125 1k
R126 20k :RN
TP17
R127 100
RV10 2200
R128 22k
C93 0.01 :CA
C94 47 16V
C95 0.01 :CA
L22 100μH
TP18
NM
RV9: TRACKING METER
RV10: VIDEO METER
IC4 BX-1257 (1/3)
IC4 BX-1257 (2/3)
IC4 BX-1257 (3/3)
R103 100
C70 0.01 :CA
C73 0.01 :CA
R108 470 :RN
L16 12μH
R109 470 :RN
C74 24p :MS
C75 24p :MS
C76 180p :MS
R110 100
R174 10k
R111 22k
R8 47k
Vcc
BIAS
GND
R112 9100 :RN
R170 2200
RV8: REC HF BALANCE
C77 0.022 :CA
TP14
E5
1-235-477-11
FL2
HPF
IN
OUT
1-235-009-21
FL3
HPF
R113 :JW
C79 0.01 :CA
R115 910 :RN
R116 510 :RN
L19 :JW
C82 39p :MS
C83 :N*M
L18 150μH
R117 240 :RN
C81 0.0022 :CA
R139 :JW
C84 0.01 :CA
Q33 DTC144ES
IC5 CX20061
L20 100μH
R119 220
R171 22k
R140 910 :RN
C85 0.022 :CA
R172 22k
R173 2200
TP15
Q13 2SC403SP
L21 100μH
R141 33
C86 0.022 :CA
R42 2200
C104 0.01 :CA
C105 47 16V
C106 0.022 :CA
E8
REC/EE +12V
REG +12V
Q34 2SB733-S
1-532-679-11
R138 0.6A
REG +12V
R129 2200
R130 10k
C35 0.01 :CA
R43 33
Q35 2SC1740SET
TP16
R131 10k
R132 10k
REC EE +12V OUT 3/3
REC EE +12V OUT 2/3
REC EE +12V OUT 162-6 N.C.
REC Y RF OUT (X) 162-1 PR. 183-6
EE Y RF OUT (X) 166-5 DM72. 107-6
EE Y RF OUT (G) 166-4 DM72. 107-7
REC/EE 12V IN 166-3 DM72. 107-8
PB Y RF IN (X) 166-2 DM72. 107-9
PB Y RF IN (G) 166-1 DM72. 107-10
SP OUT 2/3
H:SP IN 166-6 DM72. 107-5
OFF TAPE RF OUT (X) 163-1 DUS271. F
VIDEO METER OUT (X) 164-1 VR. I
VIDEO METER OUT (G) 164-2 VR. J
R142 1k
R143 3300
TP21
R144 47k
H:SP OUT 168-3 SW. 916-1
L:HI/SP 166-9 DM72. 107-2
NC 166-10 DM72. 107-1
H:SP OUT 3/3
H:SP OUT 162-5 RP. 183-2
Q36 2SC1740SET
Q37 2SC403SP
REG +5V OUT 3/3
L:DUB CONT OUT 3/3
L:DUB IN 165-5 DUS271. 906-1
L:DUB SW IN 168-1 SW. 916-3
L:DUB SW OUT 159-1 DM73. 129-3
L:DUB SW OUT 3/3 JW20
OFF TAPE RF OUT (G) 163-2 DUS271. E
REC Y RF OUT (G) 162-2 RP. 183-5
H:DUB OUT 2/3
L:DUB OUT (A) 2/3
L:SP OUT 2/3
REG +12V
L24 100μH
R133 4700
R134 7500 :RN
R135 10k
R136 13k :RN
R137 3300
D11 1SS119
D10 1SS119
C102 47 16V
C103 0.01 :CA
E7
(MD-60 ONLY)
TP19
IC7 RC78L05A
REG +5V
OUT IN GND
REG +12V
C96 100 10V
C97 0.022 :CA
C98 0.022 :CA
Q31 2SC2878
L14 100μH
REG +12V
R102 3300
R100 22k
R101 10k
Q16 2SC403SP
Q19 2SC403SP
Q17 2SC403SP
Q18 2SC403SP
Q20 2SC403SP
R70 22k :RN
R72 22k
R75 1k
R177 100
R178 100
C60 470p :CM
C61 13p :MS
C62 5.6p :MS
R78 1300 :RN
D7 1SS119
C58 47 16V
R71 750 :RN
C59 47 10V
R73 22k
R74 100
R76 22k
R77 300 :RN
Q21 2SC2878
R81 1k
RV6 4700
D8 1SS119
RV5 470k
R82 22k
R79 22k
R80 10k
Q22 2SC403SP
Q23 2SA1115
Q24 2SA1115
Q45 2SC2878
Q25 2SC403SP
R84 4700
R179 220k
RV13 100k
R85 2700
R180 220k
C63 47 16V
R83 22k
C64 0.022 :CA
C65 0.022 :PT
RV7 2200
R86 4700
D9 RD4.3E-B
R88 1k
C66 0.022 :PT
R87 2200
E4
*1
Q27 2SC403SP
Q26 2SC403SP
Q28 2SC2878
R89 10k :RN
TP12
TP13
R94 1k
R92 1500
R93 :JW
C68 13p :MS
C69 390p :CM
LV1 3.3mH
R90 1300 :RN
R91 330
C67 10p :MS
R95 47k
R96 47k
1-407-566-11
RV6: WHITE CLIP (SP)
RV5: WHITE CLIP (High)
RV7: DARK CLIP (SP)
RV13: DARK CLIP (High)
LV1: SUBCARRIER TRAP
⑩
⑪
⑭
⑮
⑯

MD-60A (1/3)

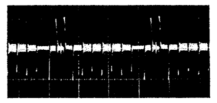
1-629-866-21
VO-9800P

① TP1
REC



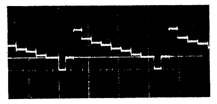
H; 20μsec / div
V; 0.5V / div

② TP2
TP3
REC



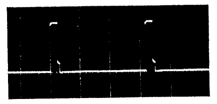
H; 20μsec / div
V; 0.2V / div

③ TP4
REC



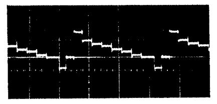
H; 20μsec / div
V; 0.5V / div

④ TP5
REC



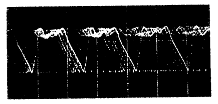
H; 20μsec / div
V; 2V / div

⑤ TP6
REC



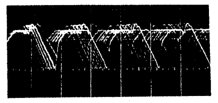
H; 20μsec / div
V; 0.5V / div

⑥ TP8
REC



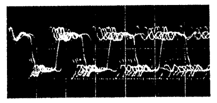
H; 0.1μsec / div
V; 0.5V / div

⑦ TP9
REC



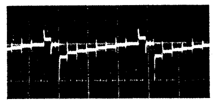
H; 0.1μsec / div
V; 0.5V / div

⑧ TP10
REC



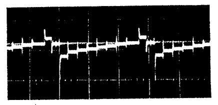
H; 0.1μsec / div
V; 1V / div

⑨ TP11
REC



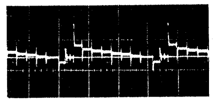
H; 20μsec / div
V; 1V / div

⑩ TP12
REC



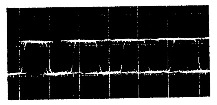
H; 20μsec / div
V; 1V / div

⑪ TP13
REC



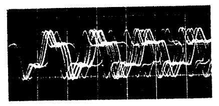
H; 20μsec / div
V; 1V / div

⑭ TP14
REC



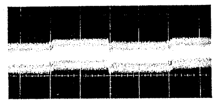
H; 50nsec / div
V; 2V / div

⑮ TP15
REC



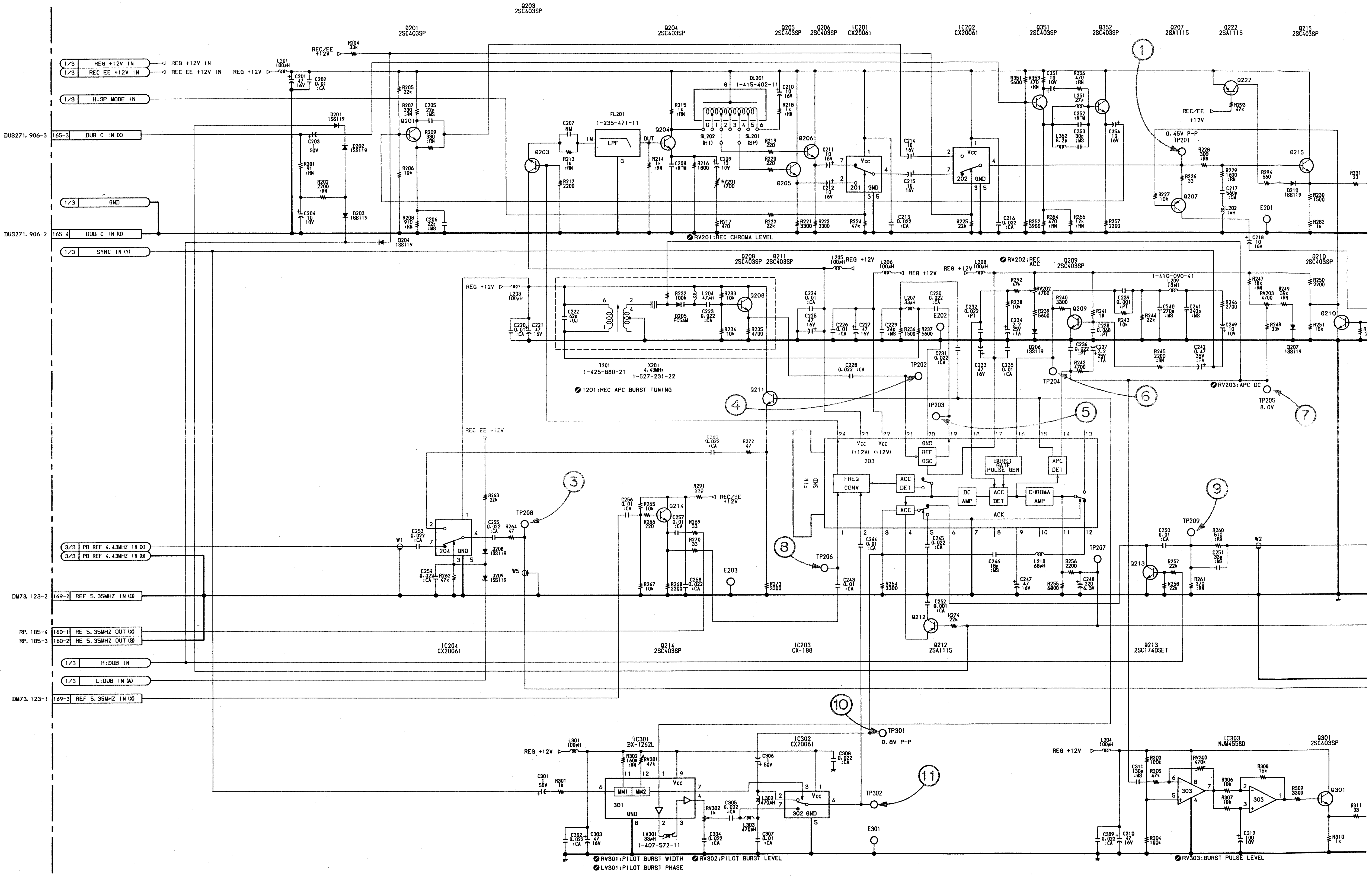
H; 0.1μsec / div
V; 1V / div

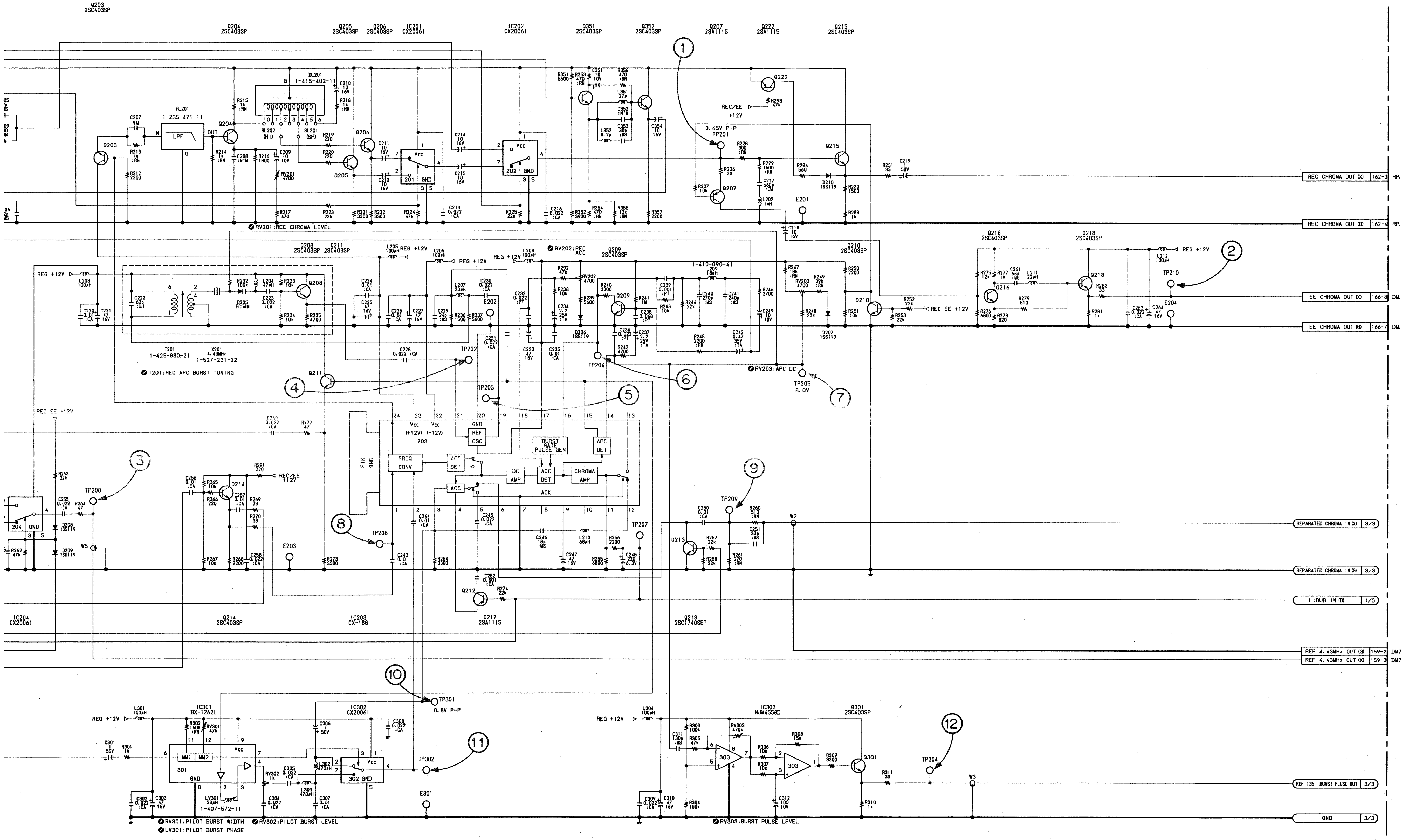
⑯ TP21
REC



H; 10msec / div
V; 0.05V / div

MD-60A (2/3): C REC PROCESSOR


REG +12V IN
REC EE +12V IN
H:SP MODE IN
DUS271, 906-3
DUB C IN (X)
GND
DUS271, 906-2
DUB C IN (G)
SYNC IN (Y)
PB REF 4.43MHZ IN (X)
PB REF 4.43MHZ IN (G)
DM73, 123-2
REF 5.35MHZ IN (G)
RP, 185-4
RP, 185-3
RE 5.35MHZ OUT (X)
RE 5.35MHZ OUT (G)
H:DUB IN
L:DUB IN (A)
DM73, 123-1
REF 5.35MHZ IN (X)
Q201 2SC403SP
Q203 2SC403SP
Q204 2SC403SP
Q205 2SC403SP
Q206 2SC403SP
IC201 CX20061
IC202 CX20061
Q351 2SC403SP
Q352 2SC403SP
Q207 2SA1115
Q222 2SA1115
Q215 2SC403SP
FL201 1-235-471-11
LPF
DL201 1-415-402-11
SL202 (H)
SL201 (SP)
RV201:REC CHROMA LEVEL
Q208 2SC403SP
Q211 2SC403SP
RV202:REC ACC
Q209 2SC403SP
Q210 2SC403SP
T201 1-425-880-21
X201 4.43MHz 1-527-231-22
T201:REC APC BURST TUNING
RV203:APC DC
TP201 0.45V P-P
TP202
TP203
TP204
TP205 8.0V
TP206
TP207
TP208
TP209
E201
E202
E203
REC/EE +12V
REC EE +12V
FREQ CONV
ACC DET
ACC
REF OSC
BURST GATE PULSE GEN
APC DET
DC AMP
CHROMA AMP
ACK
203
IC204 CX20061
Q214 2SC403SP
IC203 CX-188
Q212 2SA1115
Q213 2SC1740SET
IC301 BX-1262L
IC302 CX20061
MM1
MM2
TP301 0.8V P-P
TP302
E301
RV301:PILOT BURST WIDTH
LV301:PILOT BURST PHASE
RV302:PILOT BURST LEVEL
LV301 1-407-572-11
IC303 NJM4558D
Q301 2SC403SP
RV303:BURST PULSE LEVEL
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪


Q203 2SC403SP
Q204 2SC403SP
Q205 2SC403SP
Q206 2SC403SP
IC201 CX20061
IC202 CX20061
Q351 2SC403SP
Q352 2SC403SP
Q207 2SA1115
Q222 2SA1115
Q215 2SC403SP
FL201 1-235-471-11
LPF
DL201 1-415-402-11
SL202 (HI)
SL201 (SP)
RV201:REC CHROMA LEVEL
0.45V P-P
TP201
REC/EE +12V
E201
REC CHROMA OUT (X) 162-3 RP. 183-4
REC CHROMA OUT (B) 162-4 RP. 183-3
Q208 2SC403SP
Q211 2SC403SP
RV202:REC ACC
Q209 2SC403SP
1-410-090-41
Q210 2SC403SP
Q216 2SC403SP
Q218 2SC403SP
REG +12V
TP210
E204
EE CHROMA OUT (X) 166-8 DM. 107-3
EE CHROMA OUT (B) 166-7 DM. 107-4
REC EE +12V
T201 1-425-880-21
X201 4.43MHz 1-527-231-22
T201:REC APC BURST TUNING
D205 FC54M
E202
TP202
TP203
TP204
RV203:APC DC
TP205 8.0V
Vcc (+12V)
Vcc (+12V)
GND
203
REF OSC
BURST GATE PULSE GEN
APC DET
FREQ CONV
ACC DET
DC AMP
ACC DET
CHROMA AMP
ACC
ACK
FIX GND
TP208
204 GND
W5
Q214
E203
TP206
TP207
Q213
TP209
W2
SEPARATED CHROMA IN (X) 3/3
SEPARATED CHROMA IN (B) 3/3
L:DUB IN (B) 1/3
Q212
IC204 CX20061
Q214 2SC403SP
IC203 CX-188
Q212 2SA1115
Q213 2SC1740SET
REF 4.43MHz OUT (B) 159-2 DM73. 129-2
REF 4.43MHz OUT (X) 159-3 DM73. 129-1
TP301 0.8V P-P
IC301 BX-1262L
IC302 CX20061
IC303 NJM4558D
Q301 2SC403SP
MM1 MM2
301
302 GND
303
LV301 33μH 1-407-572-11
TP302
E301
TP304
W3
REF 135 BURST PLUSE OUT 3/3
GND 3/3
RV301:PILOT BURST WIDTH
LV301:PILOT BURST PHASE
RV302:PILOT BURST LEVEL
RV303:BURST PULSE LEVEL
①
②
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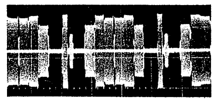
⑫

MD-60A (2/3)

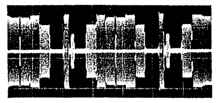
1-629-866-21
VO-9800P

① TP201
REC



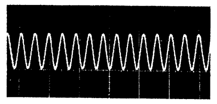
H ; 20μsec / div
V ; 0.2V / div

② TP210
REC



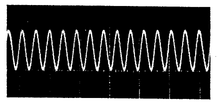
H ; 20μsec / div
V ; 0.2V / div

③ TP208
REC



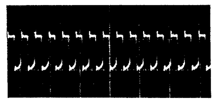
4.43MHz
V ; 0.5V / div

④ TP202
REC



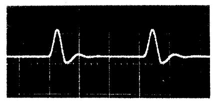
4.43MHz
V ; 0.2V / div

⑤ TP203
REC



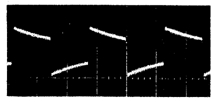
H ; 0.5μsec / div
V ; 0.5V / div

⑥ TP204
REC



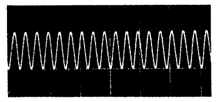
H ; 20μsec / div
V ; 5V / div

⑦ TP205
REC



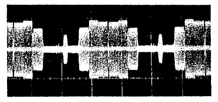
H ; 50μsec / div
V ; 0.1V / div

⑧ TP206
REC



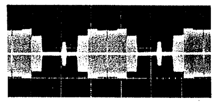
5.35MHz
V ; 0.5V / div

⑨ TP209
REC



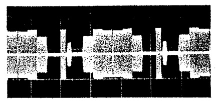
H ; 20μsec / div
V ; 0.1V / div

⑩ TP301
REC



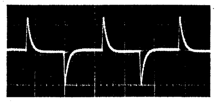
H ; 20μsec / div
V ; 0.5V / div

⑪ TP302
REC



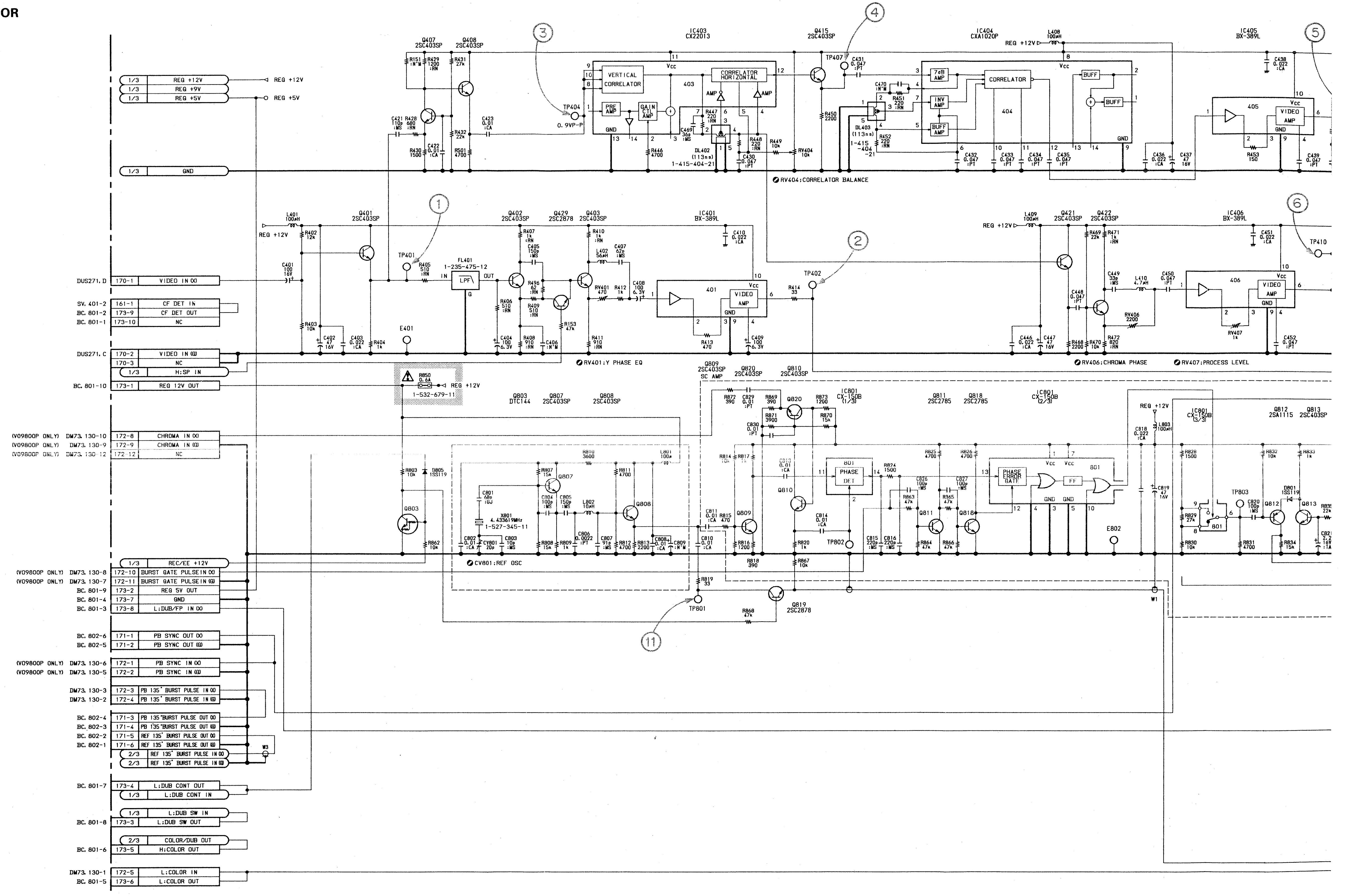
H ; 20μsec / div
V ; 0.5V / div

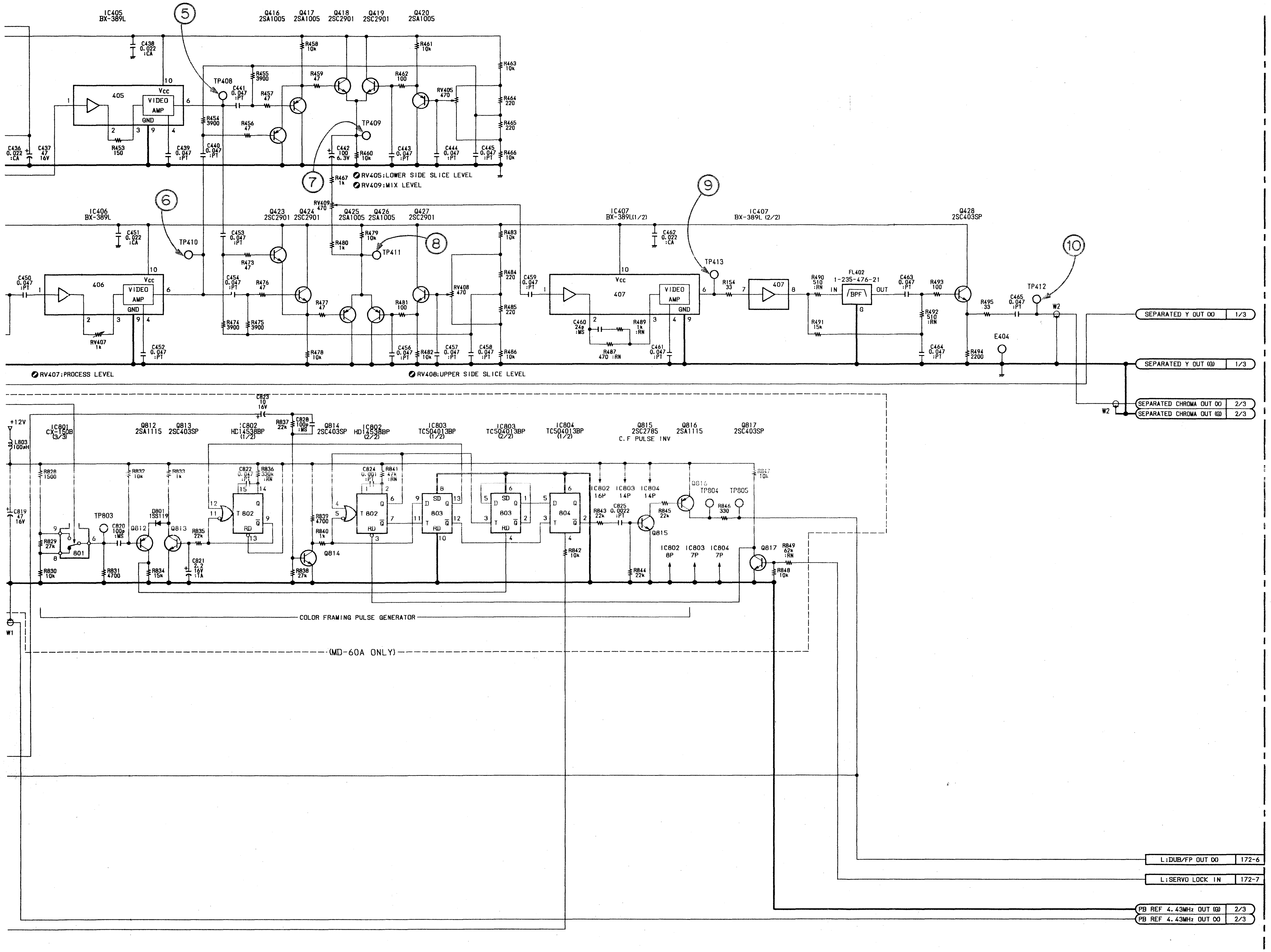
⑫ TP304
REC



H ; 50μsec / div
V ; 0.5V / div

MD-60A (3/3): Y/C SEPARATOR


1/3 REG +12V
1/3 REG +9V
1/3 REG +5V
REG +12V
REG +5V
1/3 GND
DUS271. D 170-1 VIDEO IN (X)
SV. 401-2 161-1 CF DET IN
BC. 801-2 173-9 CF DET OUT
BC. 801-1 173-10 NC
DUS271. C 170-2 VIDEO IN (G)
170-3 NC
1/3 H:SP IN
BC. 801-10 173-1 REG 12V OUT
(VO9800P ONLY) DM73. 130-10 172-8 CHROMA IN (X)
(VO9800P ONLY) DM73. 130-9 172-9 CHROMA IN (G)
(VO9800P ONLY) DM73. 130-12 172-12 NC
1/3 REC/EE +12V
(VO9800P ONLY) DM73. 130-8 172-10 BURST GATE PULSE IN (X)
(VO9800P ONLY) DM73. 130-7 172-11 BURST GATE PULSE IN (G)
BC. 801-9 173-2 REG 5V OUT
BC. 801-4 173-7 GND
BC. 801-3 173-8 L:DUB/FP IN (X)
BC. 802-6 171-1 PB SYNC OUT (X)
BC. 802-5 171-2 PB SYNC OUT (G)
(VO9800P ONLY) DM73. 130-6 172-1 PB SYNC IN (X)
(VO9800P ONLY) DM73. 130-5 172-2 PB SYNC IN (G)
DM73. 130-3 172-3 PB 135° BURST PULSE IN (X)
DM73. 130-2 172-4 PB 135° BURST PULSE IN (G)
BC. 802-4 171-3 PB 135° BURST PULSE OUT (X)
BC. 802-3 171-4 PB 135° BURST PULSE OUT (G)
BC. 802-2 171-5 REF 135° BURST PULSE OUT (X)
BC. 802-1 171-6 REF 135° BURST PULSE OUT (G)
2/3 REF 135° BURST PULSE IN (X)
2/3 REF 135° BURST PULSE IN (G)
W3
BC. 801-7 173-4 L:DUB CONT OUT
1/3 L:DUB CONT IN
1/3 L:DUB SW IN
BC. 801-8 173-3 L:DUB SW OUT
2/3 COLOR/DUB OUT
BC. 801-6 173-5 H:COLOR OUT
DM73. 130-1 172-5 L:COLOR IN
BC. 801-5 173-6 L:COLOR OUT
Q407 2SC403SP
Q408 2SC403SP
IC403 CX22013
VERTICAL CORRELATOR
CORRELATOR HORIZONTAL
PRE AMP
GAIN CTL AMP
AMP
GND
Vcc
403
DL402 (113ns) 1-415-404-21
TP404 0.9VP-P
Q415 2SC403SP
TP407
IC404 CXA1020P
7dB AMP
INV AMP
BUFF AMP
CORRELATOR
BUFF
404
DL403 (113ns) 1-415-404-21
L408 100μH
REG +12V
RV404:CORRELATOR BALANCE
IC405 BX-389L
405
VIDEO AMP
L401 100μH
REG +12V
Q401 2SC403SP
TP401
FL401 1-235-475-12
LPF
IN OUT G
Q402 2SC403SP
Q429 2SC2878
Q403 2SC403SP
IC401 BX-389L
401
VIDEO AMP
TP402
E401
RV401:Y PHASE EQ
L409 100μH
REG +12V
Q421 2SC403SP
Q422 2SC403SP
IC406 BX-389L
406
TP410
RV406:CHROMA PHASE
RV407:PROCESS LEVEL
R850 0.6A
1-532-679-11
REG +12V
Q803 DTC144
Q807 2SC403SP
Q808 2SC403SP
X801 4.433619MHz 1-527-345-11
CV801:REF OSC
Q809 2SC403SP SC AMP
Q820 2SC403SP
Q810 2SC403SP
IC801 CX-150B (1/3)
PHASE DET
TP802
Q811 2SC2785
Q818 2SC2785
IC801 CX-150B (2/3)
PHASE ERROR GATE
FF
801
E802
REG +12V
IC801 CX-150B (3/3)
Q812 2SA1115
Q813 2SC403SP
TP803
D801 1SS119
W1
TP801
Q819 2SC2878
①
②
③
④
⑤
⑥
⑪

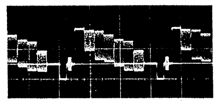

IC405 BX-389L
IC406 BX-389L
IC407 BX-389L (1/2)
IC407 BX-389L (2/2)
VIDEO AMP
Q416 2SA1005
Q417 2SA1005
Q418 2SC2901
Q419 2SC2901
Q420 2SA1005
Q423 2SC2901
Q424 2SC2901
Q425 2SA1005
Q426 2SA1005
Q427 2SC2901
Q428 2SC403SP
TP408
TP409
TP410
TP411
TP412
TP413
⑤
⑥
⑦
⑧
⑨
⑩
RV405:LOWER SIDE SLICE LEVEL
RV409:MIX LEVEL
RV407:PROCESS LEVEL
RV408:UPPER SIDE SLICE LEVEL
FL402 1-235-476-21
BPF
E404
W1
W2
SEPARATED Y OUT (X) 1/3
SEPARATED Y OUT (G) 1/3
SEPARATED CHROMA OUT (X) 2/3
SEPARATED CHROMA OUT (G) 2/3
+12V
IC801 CX-150B (3/3)
Q812 2SA1115
Q813 2SC403SP
IC802 HD14538BP (1/2)
Q814 2SC403SP
IC802 HD14538BP (2/2)
IC803 TC5040I3BP (1/2)
IC803 TC5040I3BP (2/2)
IC804 TC5040I3BP (1/2)
Q815 2SC2785
C.F PULSE INV
Q816 2SA1115
Q817 2SC403SP
TP803
TP804
TP805
D801 1SS119
COLOR FRAMING PULSE GENERATOR
(MD-60A ONLY)
L:DUB/FP OUT (X) 172-6
L:SERVO LOCK IN 172-7
PB REF 4.43MHz OUT (G) 2/3
PB REF 4.43MHz OUT (X) 2/3
DM73 130-11 (VO9800P ONLY)
DM73 130-4

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

MD-60A (3/3)

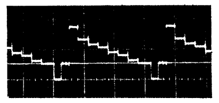
1-629-866-21
VO-9800P

① TP401
REC/PB



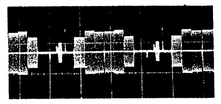
H; 20μsec / div
V; 0.5V/div

② TP402
REC/PB



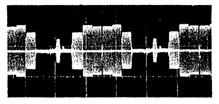
H; 20μsec / div
V; 0.5V/div

③ TP404
REC/PB



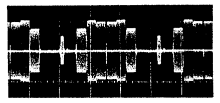
H; 20μsec / div
V; 0.5V / div

④ TP407
REC/PB



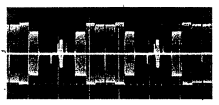
H; 20μsec / div
V; 0.2V/div

⑤ TP408
REC/PB



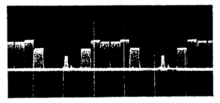
H; 20μsec / div
V; 0.1V/div

⑥ TP410
REC/PB



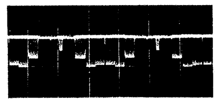
H; 20μsec / div
V; 0.5V / div

⑦ TP409
REC/PB



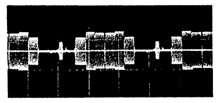
H; 20μsec / div
V; 0.5V / div

⑧ TP411
REC/PB



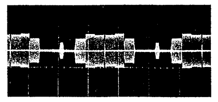
H; 20μsec/div
V; 0.5V / div

⑨ TP413
REC/PB



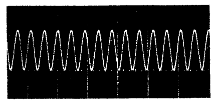
H; 20μsec / div
V; 1V/div

⑩ TP412
REC/PB



H; 20μsec / div
V; 0.5V / div

⑪ TP801
REC/PB



4.43MHz
V; 0.5V / div

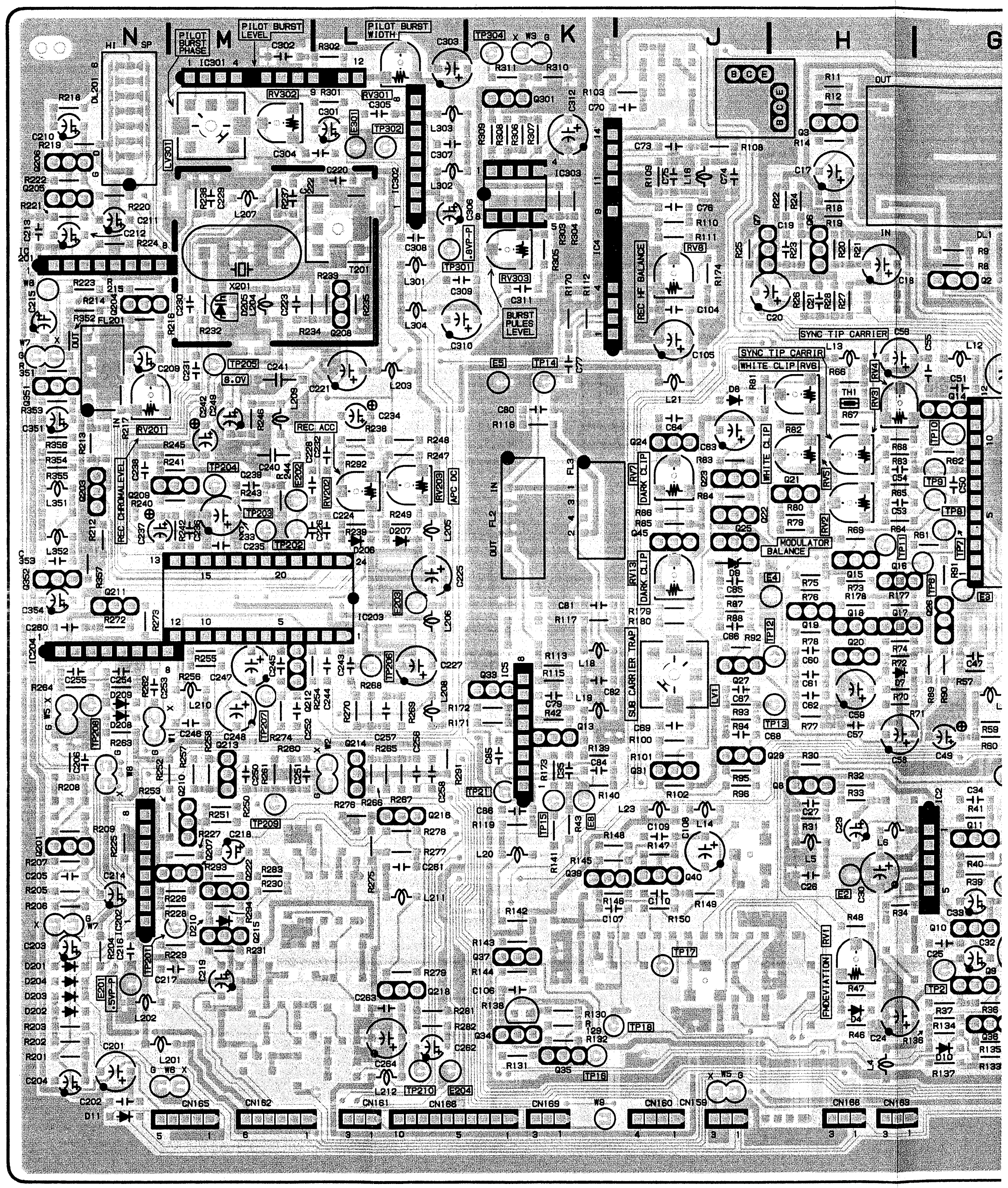
MD-60A : Y/C SEPARATOR, Y MODULATOR, C REC PROCESSOR, METER DRIVE

MD-60A (1-629-866-21) C

CN159	J-1
CN160	J-1
CN161	L-1
CN162	M-1
CN163	H-1
CN165	M-1
CN166	L-1
CN167	F-1
CN168	H-1
CN169	K-1
CN170	E-1
CN172	C-1
CV801	F-7
D1	G-6
D2	G-2
D3	G-3
D4	H-2
D5	F-5
D6	G-4
D7	H-4
D8	J-6
D9	J-5
D10	G-1
D11	N-1
D12	G-2
D13	F-3
D201	N-2
D202	N-2
D203	N-2
D204	N-2
D205	M-6
D206	L-5
D207	L-5
D208	N-4
D209	N-4
D210	M-2
D801	B-2
D805	D-2
DL1	G-7
DL201	N-8
DL402	C-3
DL403	C-4
FL2	K-5
FL3	K-5
FL201	N-6
FL401	E-2
FL402	A-5
IC1	F-6
IC2	G-3
IC3	G-5
IC4	K-7
IC5	K-3
IC201	N-7
IC202	N-3
IC203	M-4
IC204	N-4
IC301	M-8
IC302	L-7
IC303	K-7
IC401	F-4
IC403	D-4
IC404	D-5
IC405	D-5
IC406	C-5
IC407	A-7
IC801	B-3
IC802	C-2
IC803	B-2
IC804	B-1
LV1	J-4
LV301	M-8
Q1	F-6
Q2	G-6
Q3	H-7
Q6	H-7
Q7	J-7
Q8	H-3
Q9	G-2
Q10	G-2
Q11	G-3
Q12	F-3
Q13	K-3
Q14	G-6
Q15	H-5
Q16	H-4
Q17	H-4
Q18	H-4
Q19	H-4
Q20	H-4
Q21	H-5
Q22	J-5
Q23	J-5
Q24	J-5
Q25	J-5
Q26	G-4
Q27	J-4
Q28	J-3
Q31	J-3
Q33	K-4
Q34	K-1
Q35	K-1
Q36	G-2
Q37	K-2
Q39	K-3
Q40	J-3
Q43	F-5
Q44	G-3
Q45	J-5
Q201	N-3
Q203	N-5
Q204	N-6
Q205	N-7
Q206	N-7
Q207	M-3
Q208	L-6
Q209	M-5
Q210	M-3
Q211	N-4
Q212	M-4
Q213	M-3
Q214	L-3
Q215	M-2
Q216	L-3
Q218	L-2
Q222	M-2
Q301	K-8
Q351	N-6
Q352	N-4
Q401	E-1
Q402	E-2
Q403	E-3
Q407	D-2
Q408	D-3
Q415	D-4
Q416	C-6
Q417	D-6
Q418	D-6
Q419	D-6
Q420	D-7
Q421	C-4
Q422	C-5
Q423	C-6
Q424	B-6
Q425	C-6
Q426	C-6
Q427	C-7
Q428	B-5
Q429	E-2
Q801	C-1
Q802	C-2
Q803	D-2
Q807	E-8
Q808	E-8
Q809	C-3
Q810	A-2
Q811	A-3
Q812	B-3
Q813	B-2
Q814	C-1
Q815	A-1
Q816	A-1
Q817	B-1
Q818	B-3
Q819	D-7
Q820	B-4
RV1	H-2
RV2	H-5
RV3	H-5
RV4	H-6
RV5	H-5
RV6	H-6
RV7	J-5
RV8	J-7
RV13	J-5
RV201	N-6
RV202	L-5
RV203	L-5
RV301	L-8
RV302	M-7
RV303	K-7
RV401	E-3
RV404	D-4
RV405	D-7
RV406	C-5
RV407	C-6
RV408	B-7
RV409	C-6
T201	M-7
X201	M-7
X801	F-7

MD-60A (1-629-866-21) S

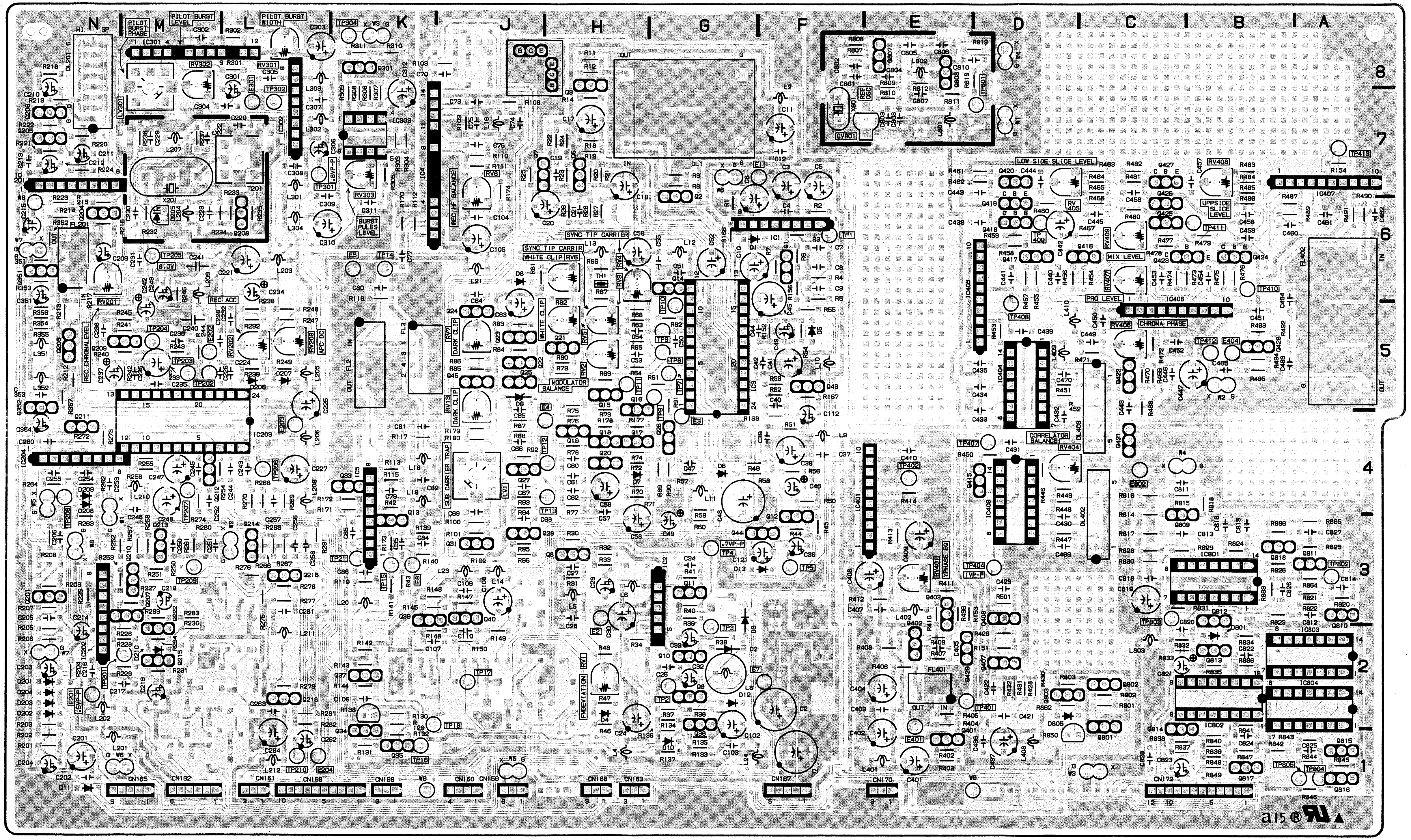
E1	F-7
E2	H-3
E3	G-4
E4	H-4
E5	K-6
E7	F-2
E8	K-3
E201	N-2
E202	M-5
E203	L-4
E204	L-1
E301	L-7
E401	E-1
E404	B-5
E802	C-4
TP1	F-6
TP2	G-2
TP3	G-2
TP4	G-3
TP5	F-3
TP6	G-5
TP7	G-5
TP8	G-5
TP9	G-5
TP10	G-5
TP11	H-5
TP12	H-4
TP13	H-4
TP14	K-6
TP15	K-3
TP16	K-1
TP17	J-2
TP18	J-2
TP21	K-3
TP201	N-2
TP202	M-5
TP203	M-5
TP204	M-5
TP205	M-6
TP206	L-4
TP207	M-4
TP208	N-4
TP209	M-3
TP210	L-1
TP301	L-7
TP302	L-7
TP304	K-8
TP401	D-2
TP402	E-4
TP404	D-3
TP407	D-4
TP408	D-5
TP409	D-6
TP410	B-6
TP411	B-6
TP412	B-5
TP413	A-7
TP801	D-7
TP802	A-3
TP803	C-3
TP804	A-1
TP805	B-1



MODULATOR, C REC PROCESSOR, METER DRIVE

MD-60A (1-629-866-21) S

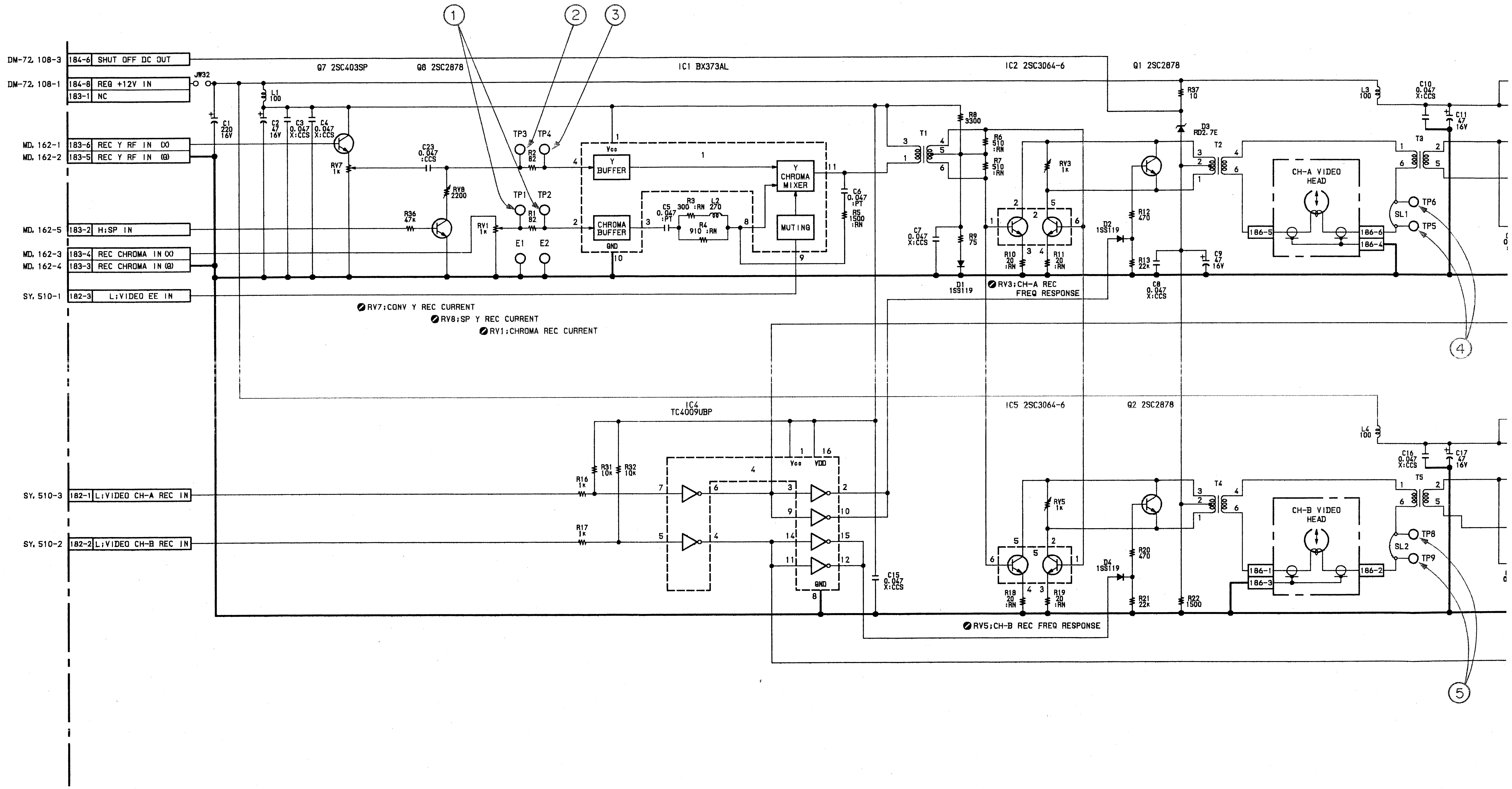
3	M-3	RV404	D-4	E1	F-7
4	L-3	RV405	D-7	E2	H-3
5	M-2	RV406	C-5	E3	G-4
6	L-3	RV407	C-6	E4	H-4
8	L-2	RV408	B-7	E5	K-6
2	M-2	RV409	C-6	E7	F-2
1	K-8			E8	K-3
1	N-6	T201	M-7	E201	N-2
2	N-4			E202	M-5
1	E-1	X201	M-7	E203	L-4
2	E-2	X801	F-7	E204	L-1
3	E-3			E301	L-7
7	D-2			E401	E-1
8	D-3			E404	B-5
5	D-4			E802	C-4
6	C-6				
7	D-6			TP1	F-6
8	D-6			TP2	G-2
9	D-6			TP3	G-2
0	D-7			TP4	G-3
1	C-4			TP5	F-3
2	C-5			TP6	G-5
3	C-6			TP7	G-5
4	B-6			TP8	G-5
5	C-6			TP9	G-5
6	C-6			TP10	G-5
7	C-7			TP11	H-5
8	B-5			TP12	H-4
9	E-2			TP13	H-4
1	C-1			TP14	K-6
2	C-2			TP15	K-3
3	D-2			TP16	K-1
7	E-8			TP17	J-2
8	E-8			TP18	J-2
9	C-3			TP21	K-3
0	A-2			TP201	N-2
1	A-3			TP202	M-5
2	B-3			TP203	M-5
3	B-2			TP204	M-5
4	C-1			TP205	M-6
5	A-1			TP206	L-4
6	A-1			TP207	M-4
7	B-1			TP208	N-4
8	B-3			TP209	M-3
9	D-7			TP210	L-1
0	B-4			TP301	L-7
				TP302	L-7
	H-2			TP304	K-8
	H-5			TP401	D-2
	H-5			TP402	E-4
	H-6			TP404	D-3
	H-5			TP407	D-4
	H-6			TP408	D-5
	J-5			TP409	D-6
	J-7			TP410	B-6
3	J-5			TP411	B-6
1	N-6			TP412	B-5
2	L-5			TP413	A-7
3	L-5			TP801	D-7
1	L-8			TP802	A-3
2	M-7			TP803	C-3
3	K-7			TP804	A-1
1	E-3			TP805	B-1

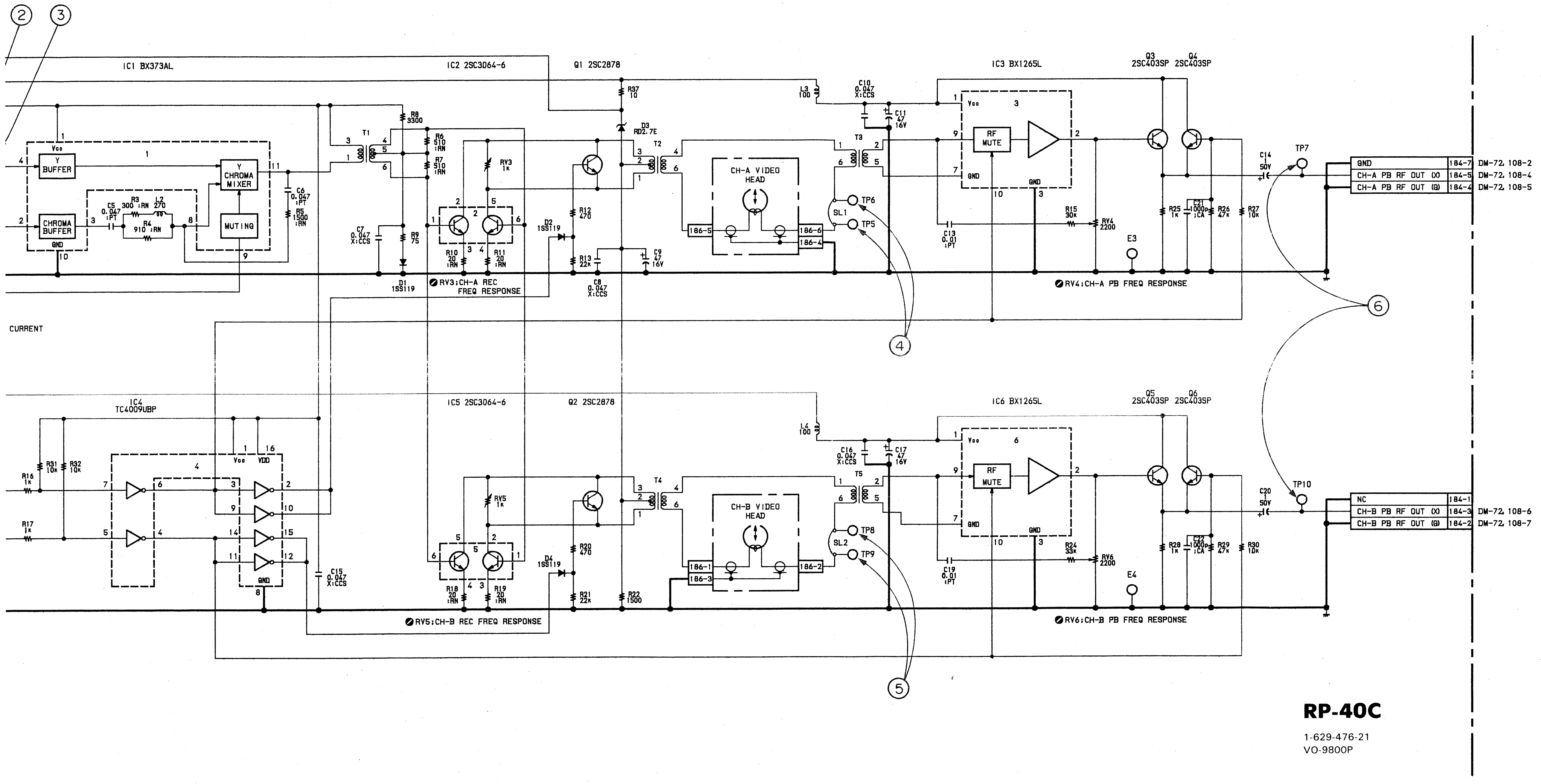

N
M
L
K
J
H
G
F
E
D
C
B
A
8
7
6
5
4
3
2
1
PILOT BURST PHASE
PILOT BURST LEVEL
PILOT BURST WIDTH
BURST PULES LEVEL
REC ACC
REC CHROMA LEVEL
APC DC
RED HF BALANCE
SYNC TIP CARRIER
SYNC TIP CARRIER
WHITE CLIP
DARK CLIP
WHITE CLIP
MODULATOR BALANCE
DARK CLIP
SUB CARRIER TRAP
DEVIATION
LOW SIDE SLICE LEVEL
UPSIDE SLICE LEVEL
MIX LEVEL
PRO LEVEL
CHROMA PHASE
CORRELATOR BALANCE
YPHASE
IC201
IC203
IC204
IC301
IC303
IC1
IC2
IC3
IC401
IC403
IC404
IC405
IC406
IC407
IC801
IC802
IC803
IC804
FL401
FL402
DL1
DL401
DL402
DL403
X201
X801
T201
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN168
CN163
CN167
CN170
CN172
IN
OUT
a15®

MD-60A

—SOLDERING SIDE—
1-629-866-21
VO-9800P

RP-40C : REC/PB AMPLIFIER

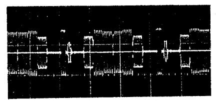

①
②
③
④
⑤
DM-72, 108-3
DM-72, 108-1
MD, 162-1
MD, 162-2
MD, 162-5
MD, 162-3
MD, 162-4
SY, 510-1
SY, 510-3
SY, 510-2
184-6 SHUT OFF DC OUT
184-8 REG +12V IN
183-1 NC
183-6 REC Y RF IN (X)
183-5 REC Y RF IN (θ)
183-2 H:SP IN
183-4 REC CHROMA IN (X)
183-3 REC CHROMA IN (θ)
182-3 L:VIDEO EE IN
182-1 L:VIDEO CH-A REC IN
182-2 L:VIDEO CH-B REC IN
JW32
Q7 2SC403SP
Q8 2SC2878
IC1 BX373AL
IC2 2SC3064-6
Q1 2SC2878
IC4 TC4009UBP
IC5 2SC3064-6
Q2 2SC2878
C1 220 16V
L1 100
C2 47 16V
C3 0.047 X:CCS
C4 0.047 X:CCS
C23 0.047 :CCS
RV7 1k
RV8 2200
R36 47k
RV1 1k
TP1
TP2
TP3
TP4
R1 82
R2 82
E1
E2
Y BUFFER
CHROMA BUFFER
Y CHROMA MIXER
MUTING
Vcc
GND
C5 0.047 :PT
R3 300 :RN
L2 270
R4 910 :RN
C6 0.047 :PT
R5 1500 :RN
R8 3300
T1
R6 510 :RN
R7 510 :RN
C7 0.047 X:CCS
R9 75
D1 1SS119
RV3 1k
R10 20 :RN
R11 20 :RN
D2 1SS119
R12 470
R13 22k
C8 0.047 X:CCS
C9 47 16V
R37 10
D3 RD2.7E
T2
L3 100
C10 0.047 X:CCS
C11 47 16V
T3
CH-A VIDEO HEAD
186-5
186-6
186-4
SL1
TP6
TP5
RV7:CONV Y REC CURRENT
RV8:SP Y REC CURRENT
RV1:CHROMA REC CURRENT
RV3:CH-A REC FREQ RESPONSE
R16 1k
R17 1k
R31 10k
R32 10k
Vcc
VDD
GND
C15 0.047 X:CCS
RV5 1k
R18 20 :RN
R19 20 :RN
D4 1SS119
R20 470
R21 22k
R22 1500
T4
L4 100
C16 0.047 X:CCS
C17 47 16V
T5
CH-B VIDEO HEAD
186-1
186-3
186-2
SL2
TP8
TP9
RV5:CH-B REC FREQ RESPONSE


②
③
IC1 BX373AL
IC2 2SC3064-6
Q1 2SC2878
IC3 BX1265L
Q3 2SC403SP
Q4 2SC403SP
Y BUFFER
Y CHROMA MIXER
CHROMA BUFFER
MUTING
GND
R3 300 :RN
L2 270
R4 910 :RN
C5 0.047 :PT
C6 0.047 :PT
R5 1500 :RN
T1
R8 3300
R6 510 :RN
R7 510 :RN
C7 0.047 X:CCS
R9 75
D1 1SS119
RV3 1k
R10 20 :RN
R11 20 :RN
RV3:CH-A REC FREQ RESPONSE
D2 1SS119
R12 470
R13 22k
C8 0.047 X:CCS
R37 10
D3 RD2.7E
C9 47 16V
T2
CH-A VIDEO HEAD
186-5
186-6
186-4
SL1
TP6
TP5
T3
L3 100
C10 0.047 X:CCS
C11 47 16V
RF MUTE
C13 0.01 :PT
R15 30k
RV4 2200
E3
RV4:CH-A PB FREQ RESPONSE
R25 1k
C21 1000p :CA
R26 47k
R27 10k
C14 50V
TP7
GND
CH-A PB RF OUT (X)
CH-A PB RF OUT (G)
184-7
184-5
184-4
DM-72, 108-2
DM-72, 108-4
DM-72, 108-5
④
⑥
CURRENT
IC4 TC4009UBP
IC5 2SC3064-6
Q2 2SC2878
IC6 BX1265L
Q5 2SC403SP
Q6 2SC403SP
R16 1k
R17 1k
R31 10k
R32 10k
C15 0.047 X:CCS
RV5 1k
R18 20 :RN
R19 20 :RN
RV5:CH-B REC FREQ RESPONSE
D4 1SS119
R20 470
R21 22k
R22 1500
T4
CH-B VIDEO HEAD
186-1
186-3
186-2
SL2
TP8
TP9
T5
L4 100
C16 0.047 X:CCS
C17 47 16V
C19 0.01 :PT
R24 33k
RV6 2200
E4
RV6:CH-B PB FREQ RESPONSE
R28 1k
C22 1000p :CA
R29 47k
R30 10k
C20 50V
TP10
NC
CH-B PB RF OUT (X)
CH-B PB RF OUT (G)
184-1
184-3
184-2
DM-72, 108-6
DM-72, 108-7
⑤

RP-40C

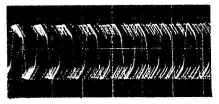
1-629-476-21
VO-9800P

① TP1 TP2 REC



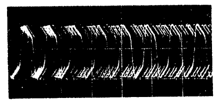
H; 20μsec /div
V; 0.2V /div

② TP3 REC



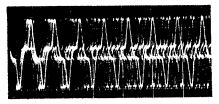
H; 0.2μsec /div
V; 0.2V /div

③ TP4 REC



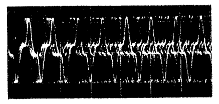
H; 0.2μsec /div
V; 0.2V /div

④ TP5 TP6 REC



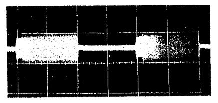
H; 0.2μsec /div
V; 1V /div

⑤ TP8 TP9 REC



H; 0.2μsec /div
V; 0.2V /div

⑥ TP7 TP10 PB



H; 10msec /div
V; 0.05V/div

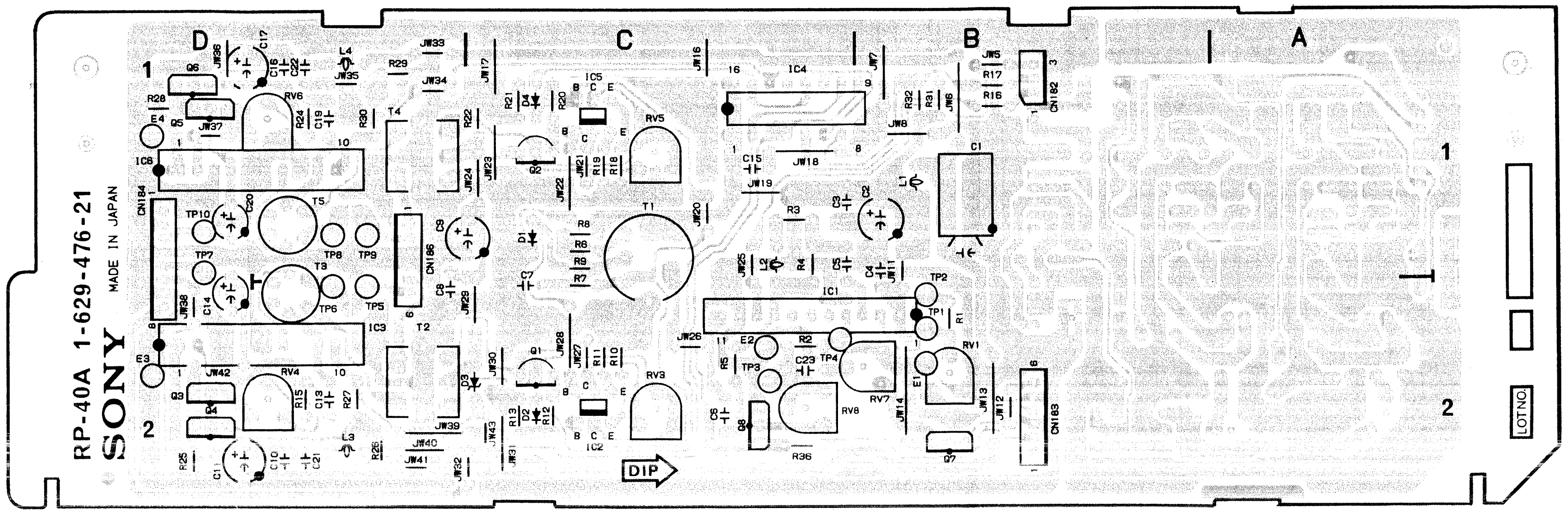
RP-40C: REC/PB AMPLIFIER

RP-40C (1-629-746-21) C

CN182	B-1	T1	C-1
CN183	B-2	T2	D-2
CN184	D-1	T3	D-1
CN186	D-1	T4	D-1
		T5	D-1
D1	C-1		
D2	C-2		
D3	D-2		
D4	C-1		
IC1	C-2		
IC2	C-2		
IC3	D-2		
IC4	C-1		
IC5	C-1		
IC6	D-1		
L1	B-1		
L2	C-1		
L3	D-2		
L4	D-1		
Q1	C-2		
Q2	C-1		
Q3	D-2		
Q4	D-2		
Q5	D-1		
Q6	D-1		
Q7	B-2		
Q8	C-2		
RV1	B-2		
RV3	C-2		
RV4	D-2		
RV5	C-1		
RV6	D-1		
RV7	B-2		
RV8	C-2		

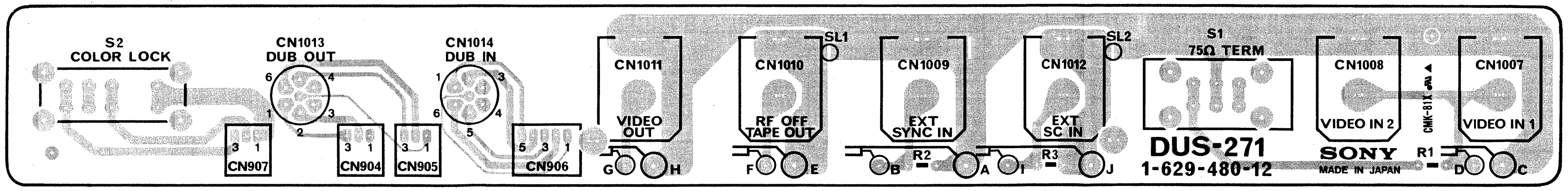
RP-40C (1-629-746-21) S

E1	B-2
E2	C-2
E3	D-2
E4	D-1
TP1	B-2
TP2	B-1
TP3	C-2
TP4	C-2
TP5	D-1
TP6	D-1
TP7	D-1
TP8	D-1
TP9	D-1
TP10	D-1


D
C
B
A
1
2
RP-40A 1-629-476-21
MADE IN JAPAN
SONY
IC1
IC2
IC3
IC4
IC5
IC6
T1
T2
T3
T4
T5
CN182
CN183
CN184
CN186
RV1
RV3
RV4
RV5
RV6
RV7
RV8
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
DIP
LOT NO.

RP-40C

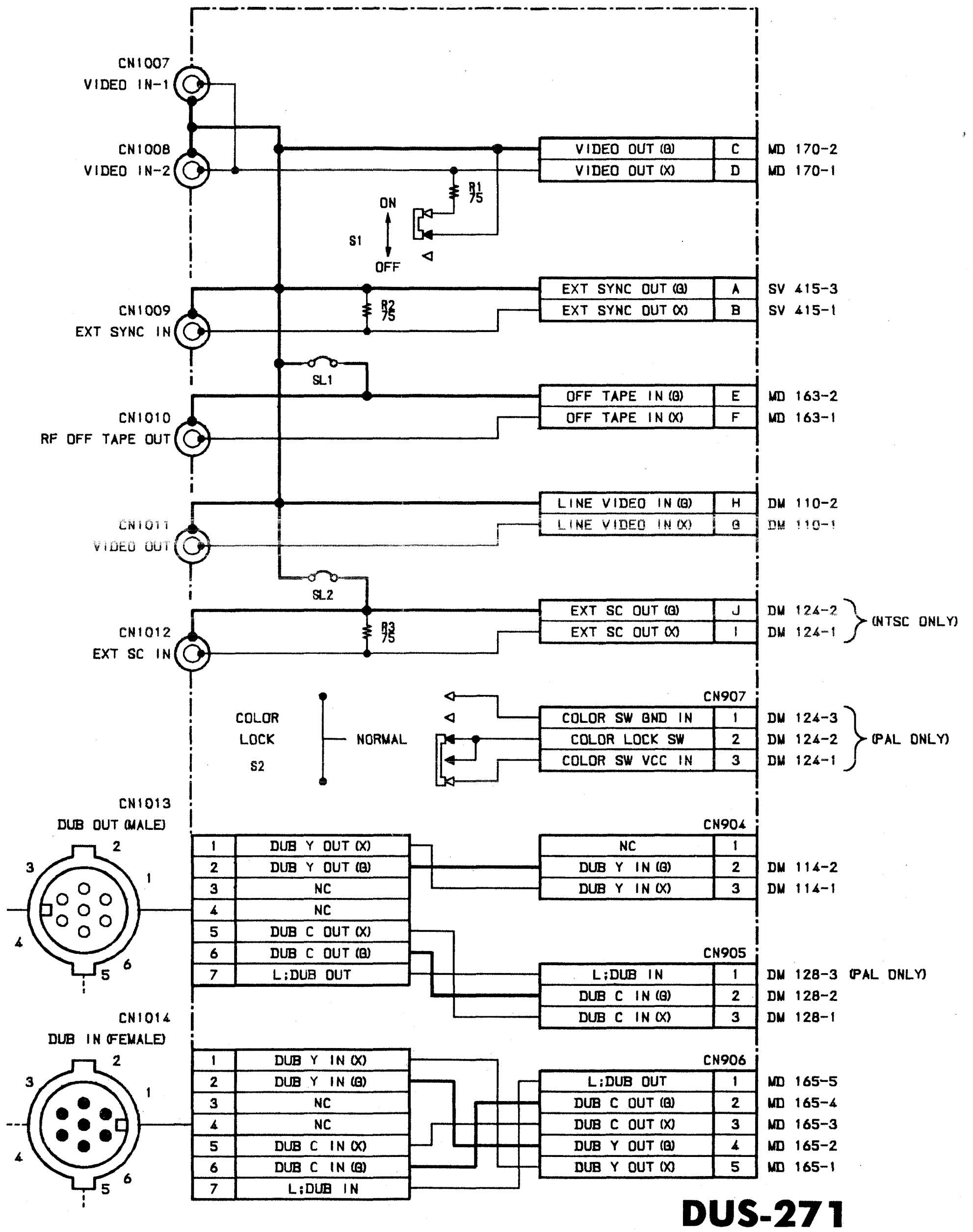
—COMPONENT SIDE—
1-629-476-21
VO-9800P


S2
COLOR LOCK
CN1013
DUB OUT
CN1014
DUB IN
CN1011
VIDEO OUT
SL1
CN1010
RF OFF
TAPE OUT
CN1009
EXT
SYNC IN
CN1012
EXT
SC IN
SL2
S1
75Ω TERM
CN1008
VIDEO IN 2
CN1007
VIDEO IN 1
CN907
CN904
CN905
CN906
G
H
F
E
B
A
I
J
D
C
R1
R2
R3
DUS-271
1-629-480-12
SONY
MADE IN JAPAN

DUS-271

—COMPONENT SIDE—
1-629-480-12
VO-9850
VO-9850P
VO-9800
VO-9800P

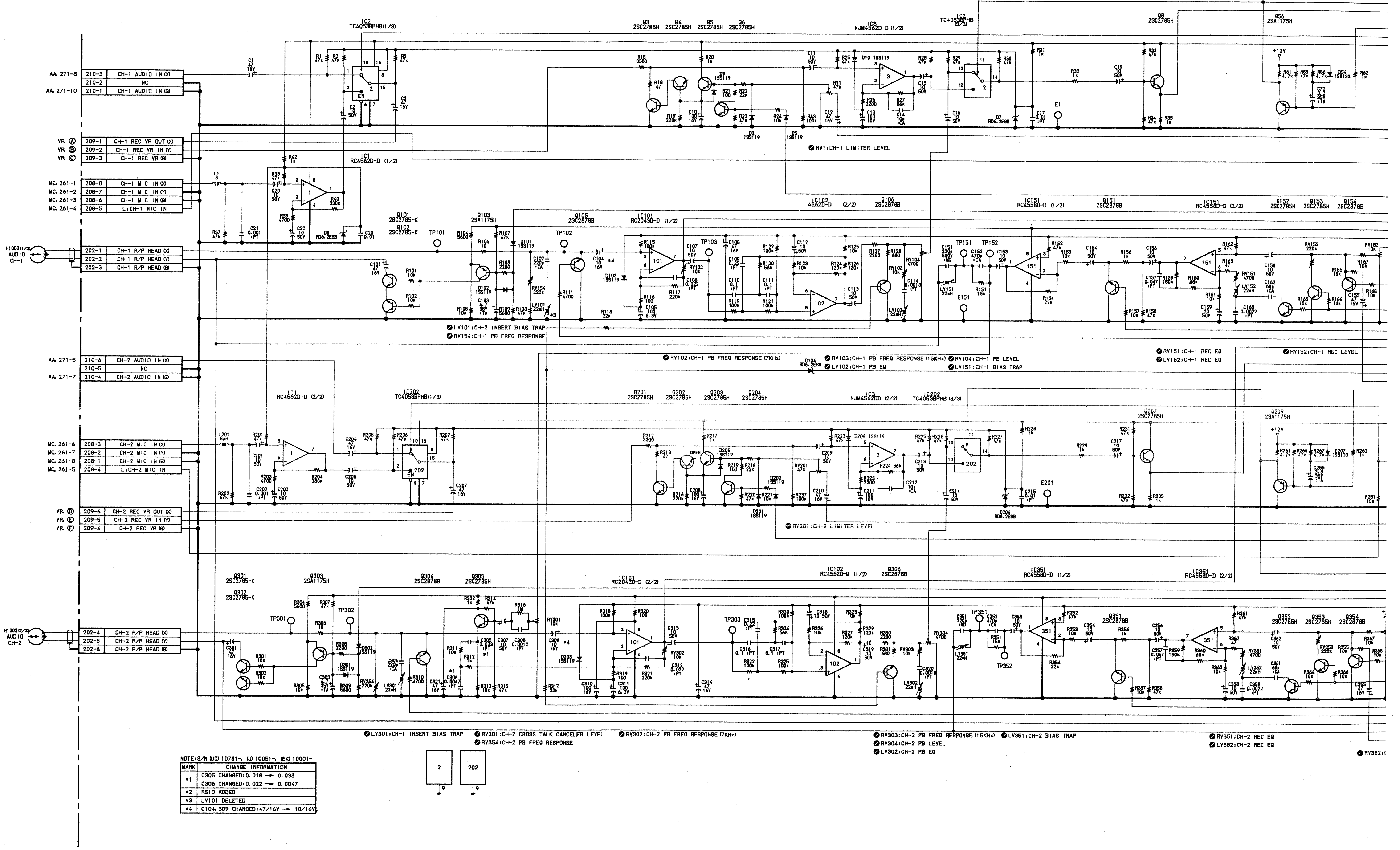
DUS-271: CONNECTOR


CN1007
VIDEO IN-1
CN1008
VIDEO IN-2
VIDEO OUT (G) C MD 170-2
VIDEO OUT (X) D MD 170-1
ON
S1
OFF
R1 75
EXT SYNC OUT (G) A SV 415-3
EXT SYNC OUT (X) B SV 415-1
R2 75
CN1009
EXT SYNC IN
SL1
OFF TAPE IN (G) E MD 163-2
OFF TAPE IN (X) F MD 163-1
CN1010
RF OFF TAPE OUT
LINE VIDEO IN (G) H DM 110-2
LINE VIDEO IN (X) G DM 110-1
CN1011
VIDEO OUT
SL2
EXT SC OUT (G) J DM 124-2
EXT SC OUT (X) I DM 124-1
(NTSC ONLY)
R3 75
CN1012
EXT SC IN
CN907
COLOR LOCK
S2
NORMAL
COLOR SW GND IN 1 DM 124-3
COLOR LOCK SW 2 DM 124-2
COLOR SW VCC IN 3 DM 124-1
(PAL ONLY)
CN1013
DUB OUT (MALE)
1 DUB Y OUT (X)
2 DUB Y OUT (G)
3 NC
4 NC
5 DUB C OUT (X)
6 DUB C OUT (G)
7 L;DUB OUT
CN904
NC 1
DUB Y IN (G) 2 DM 114-2
DUB Y IN (X) 3 DM 114-1
CN905
L;DUB IN 1 DM 128-3 (PAL ONLY)
DUB C IN (G) 2 DM 128-2
DUB C IN (X) 3 DM 128-1
CN1014
DUB IN (FEMALE)
1 DUB Y IN (X)
2 DUB Y IN (G)
3 NC
4 NC
5 DUB C IN (X)
6 DUB C IN (G)
7 L;DUB IN
CN906
L;DUB OUT 1 MD 165-5
DUB C OUT (G) 2 MD 165-4
DUB C OUT (X) 3 MD 165-3
DUB Y OUT (G) 4 MD 165-2
DUB Y OUT (X) 5 MD 165-1
1
2
3
4
5
6

DUS-271

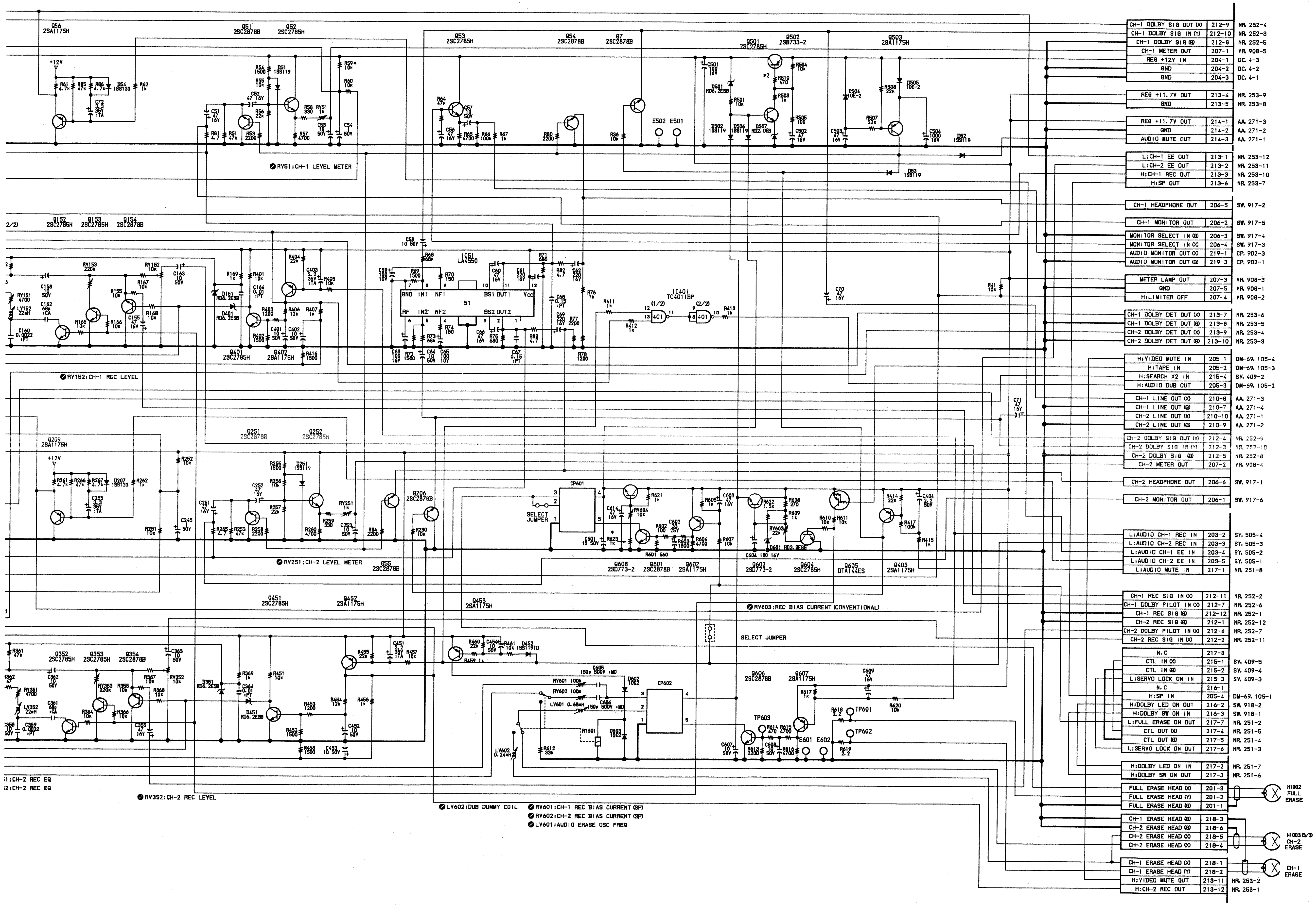
1-629-480-11,12
VO-9850
VO-9850P
VO-9800
VO-9800P

AU-124A: REC/PB AMPLIFIER, ERASE/BIAS OSCILLATOR


AA 271-8
AA 271-10
210-3 CH-1 AUDIO IN (X)
210-2 NC
210-1 CH-1 AUDIO IN (G)
VR Ⓐ
VR Ⓑ
VR Ⓒ
209-1 CH-1 REC VR OUT (X)
209-2 CH-1 REC VR IN (Y)
209-3 CH-1 REC VR (G)
MC 261-1
MC 261-2
MC 261-3
MC 261-4
208-8 CH-1 MIC IN (X)
208-7 CH-1 MIC IN (Y)
208-6 CH-1 MIC IN (G)
208-5 L:CH-1 MIC IN
H1003(1/3) AUDIO CH-1
202-1 CH-1 R/P HEAD (X)
202-2 CH-1 R/P HEAD (Y)
202-3 CH-1 R/P HEAD (G)
AA 271-5
AA 271-7
210-6 CH-2 AUDIO IN (X)
210-5 NC
210-4 CH-2 AUDIO IN (G)
MC 261-6
MC 261-7
MC 261-8
MC 261-5
208-3 CH-2 MIC IN (X)
208-2 CH-2 MIC IN (Y)
208-1 CH-2 MIC IN (G)
208-4 L:CH-2 MIC IN
VR Ⓓ
VR Ⓔ
VR Ⓕ
209-6 CH-2 REC VR OUT (X)
209-5 CH-2 REC VR IN (Y)
209-4 CH-2 REC VR (G)
H1003(2/3) AUDIO CH-2
202-4 CH-2 R/P HEAD (X)
202-5 CH-2 R/P HEAD (Y)
202-6 CH-2 R/P HEAD (G)
IC2 TC4053BPHB(1/3)
IC1 RC4562D-D (1/2)
IC1 RC4562D-D (2/2)
IC202 TC4053BPHB(1/3)
Q3 2SC2785H
Q4 2SC2785H
Q5 2SC2785H
Q6 2SC2785H
IC3 NJM4562D-D (1/2)
IC2 TC4053BPHB (3/3)
Q8 2SC2785H
Q56 2SA1175H
Q101 2SC2785-K
Q102 2SC2785-K
Q103 2SA1175H
Q105 2SC2878B
IC101 RC2043D-D (1/2)
IC102 4562D-D (2/2)
Q106 2SC2878B
IC151 RC4558D-D (1/2)
Q151 2SC2878B
IC151 RC4558D-D (2/2)
Q152 2SC2785H
Q153 2SC2785H
Q154 2SC2878B
Q201 2SC2785H
Q202 2SC2785H
Q203 2SC2785H
Q204 2SC2785H
IC3 NJM4562DD (2/2)
IC202 TC4053BPHB (3/3)
Q207 2SC2785H
Q209 2SA1175H
Q301 2SC2785-K
Q302 2SC2785-K
Q303 2SA1175H
Q304 2SC2878B
Q305 2SC2785H
IC101 RC2043D-D (2/2)
IC102 RC4562D-D (1/2)
Q306 2SC2878B
IC351 RC4558D-D (1/2)
Q351 2SC2878B
IC351 RC4558D-D (2/2)
Q352 2SC2785H
Q353 2SC2785H
Q354 2SC2878B
TP101
TP102
TP103
TP151
TP152
E1
E151
E201
TP301
TP302
TP303
TP351
TP352
+12V
RV1:CH-1 LIMITER LEVEL
LV101:CH-2 INSERT BIAS TRAP
RV154:CH-1 PB FREQ RESPONSE
RV102:CH-1 PB FREQ RESPONSE (7KHz)
RV103:CH-1 PB FREQ RESPONSE (15KHz)
LV102:CH-1 PB EQ
RV104:CH-1 PB LEVEL
LV151:CH-1 BIAS TRAP
RV151:CH-1 REC EQ
LV152:CH-1 REC EQ
RV152:CH-1 REC LEVEL
RV201:CH-2 LIMITER LEVEL
LV301:CH-1 INSERT BIAS TRAP
RV301:CH-2 CROSS TALK CANCELER LEVEL
RV354:CH-2 PB FREQ RESPONSE
RV302:CH-2 PB FREQ RESPONSE (7KHz)
RV303:CH-2 PB FREQ RESPONSE (15KHz)
RV304:CH-2 PB LEVEL
LV302:CH-2 PB EQ
LV351:CH-2 BIAS TRAP
RV351:CH-2 REC EQ
LV352:CH-2 REC EQ
2
202
9

NOTE:S/N (UC) 10781-, (J) 10051-, (EK) 10001-

MARK	CHANGE INFORMATION
*1	C305 CHANGED:0.018 → 0.033 C306 CHANGED:0.022 → 0.0047
*2	R510 ADDED
*3	LV101 DELETED
*4	C104, 309 CHANGED:47/16V → 10/16V


Q56 2SA1175H
Q51 2SC2878B
Q52 2SC2785H
Q53 2SC2785H
Q54 2SC2878B
Q7 2SC2878B
Q501 2SC2785H
Q502 2SB733-2
Q503 2SA1175H
IC51 LA4550
IC401 TC4011BP
Q152 2SC2785H
Q153 2SC2785H
Q154 2SC2878B
Q401 2SC2785H
Q402 2SA1175H
Q209 2SA1175H
Q251 2SC2878B
Q252 2SC2785H
Q206 2SC2878B
Q55 2SC2878B
CP601
SELECT JUMPER
Q608 2SD773-2
Q601 2SC2878B
Q602 2SA1175H
Q603 2SD773-2
Q604 2SC2785H
Q605 DTA144ES
Q403 2SA1175H
Q451 2SC2785H
Q452 2SA1175H
Q453 2SA1175H
Q352 2SC2785H
Q353 2SC2785H
Q354 2SC2878B
CP602
Q606 2SC2878B
Q607 2SA1175H
TP601
TP602
TP603
E501
E502
E601
E602
RV51:CH-1 LEVEL METER
RV152:CH-1 REC LEVEL
RV251:CH-2 LEVEL METER
RY603:REC BIAS CURRENT (CONVENTIONAL)
RV352:CH-2 REC LEVEL
LV602:DUB DUMMY COIL
RY601:CH-1 REC BIAS CURRENT (SP)
RY602:CH-2 REC BIAS CURRENT (SP)
LY601:AUDIO ERASE OSC FREQ
CH-1 DOLBY SIG OUT (X) 212-9 NR. 252-4
CH-1 DOLBY SIG IN (Y) 212-10 NR. 252-3
CH-1 DOLBY SIG (G) 212-8 NR. 252-5
CH-1 METER OUT 207-1 VR. 908-5
REG +12V IN 204-1 DC. 4-3
GND 204-2 DC. 4-2
GND 204-3 DC. 4-1
REG +11.7V OUT 213-4 NR. 253-9
GND 213-5 NR. 253-8
REG +11.7V OUT 214-1 AA. 271-3
GND 214-2 AA. 271-2
AUDIO MUTE OUT 214-3 AA. 271-1
L:CH-1 EE OUT 213-1 NR. 253-12
L:CH-2 EE OUT 213-2 NR. 253-11
H:CH-1 REC OUT 213-3 NR. 253-10
H:SP OUT 213-6 NR. 253-7
CH-1 HEADPHONE OUT 206-5 SW. 917-2
CH-1 MONITOR OUT 206-2 SW. 917-5
MONITOR SELECT IN (G) 206-3 SW. 917-4
MONITOR SELECT IN (X) 206-4 SW. 917-3
AUDIO MONITOR OUT (X) 219-1 CP. 902-3
AUDIO MONITOR OUT (G) 219-3 CP. 902-1
METER LAMP OUT 207-3 VR. 908-3
GND 207-5 VR. 908-1
H:LIMITER OFF 207-4 VR. 908-2
CH-1 DOLBY DET OUT (X) 213-7 NR. 253-6
CH-1 DOLBY DET OUT (G) 213-8 NR. 253-5
CH-2 DOLBY DET OUT (X) 213-9 NR. 253-4
CH-2 DOLBY DET OUT (G) 213-10 NR. 253-3
H:VIDEO MUTE IN 205-1 DM-69. 105-4
H:TAPE IN 205-2 DM-69. 105-3
H:SEARCH X2 IN 215-4 SY. 409-2
H:AUDIO DUB OUT 205-3 DM-69. 105-2
CH-1 LINE OUT (X) 210-8 AA. 271-3
CH-1 LINE OUT (G) 210-7 AA. 271-4
CH-2 LINE OUT (X) 210-10 AA. 271-1
CH-2 LINE OUT (G) 210-9 AA. 271-2
CH-2 DOLBY SIG OUT (X) 212-4 NR. 252-9
CH-2 DOLBY SIG IN (Y) 212-3 NR. 252-10
CH-2 DOLBY SIG (G) 212-5 NR. 252-8
CH-2 METER OUT 207-2 VR. 908-4
CH-2 HEADPHONE OUT 206-6 SW. 917-1
CH-2 MONITOR OUT 206-1 SW. 917-6
L:AUDIO CH-1 REC IN 203-2 SY. 505-4
L:AUDIO CH-2 REC IN 203-3 SY. 505-3
L:AUDIO CH-1 EE IN 203-4 SY. 505-2
L:AUDIO CH-2 EE IN 203-5 SY. 505-1
L:AUDIO MUTE IN 217-1 NR. 251-8
CH-1 REC SIG IN (X) 212-11 NR. 252-2
CH-1 DOLBY PILOT IN (X) 212-7 NR. 252-6
CH-1 REC SIG (G) 212-12 NR. 252-1
CH-2 REC SIG (G) 212-1 NR. 252-12
CH-2 DOLBY PILOT IN (X) 212-6 NR. 252-7
CH-2 REC SIG IN (X) 212-2 NR. 252-11
N.C 217-8
CTL IN (X) 215-1 SY. 409-5
CTL IN (G) 215-2 SY. 409-4
L:SERVO LOCK ON IN 215-3 SY. 409-3
N.C 216-1
H:SP IN 205-4 DM-69. 105-1
H:DOLBY LED ON OUT 216-2 SW. 918-2
H:DOLBY SW ON IN 216-3 SW. 918-1
L:FULL ERASE ON OUT 217-7 NR. 251-2
CTL OUT (X) 217-4 NR. 251-5
CTL OUT (G) 217-5 NR. 251-4
L:SERVO LOCK ON OUT 217-6 NR. 251-3
H:DOLBY LED ON IN 217-2 NR. 251-7
H:DOLBY SW ON OUT 217-3 NR. 251-6
FULL ERASE HEAD (X) 201-3
FULL ERASE HEAD (Y) 201-2
FULL ERASE HEAD (G) 201-1
CH-1 ERASE HEAD (G) 218-3
CH-2 ERASE HEAD (G) 218-6
CH-2 ERASE HEAD (X) 218-5
CH-2 ERASE HEAD (X) 218-4
CH-1 ERASE HEAD (X) 218-1
CH-1 ERASE HEAD (Y) 218-2
H:VIDEO MUTE OUT 213-11 NR. 253-2
H:CH-2 REC OUT 213-12 NR. 253-1
H1002 FULL ERASE
H1003 (3/3) CH-2 ERASE
CH-1 ERASE

AU-124A

1-629-553-21, 22
VO-9800
VO-9800P

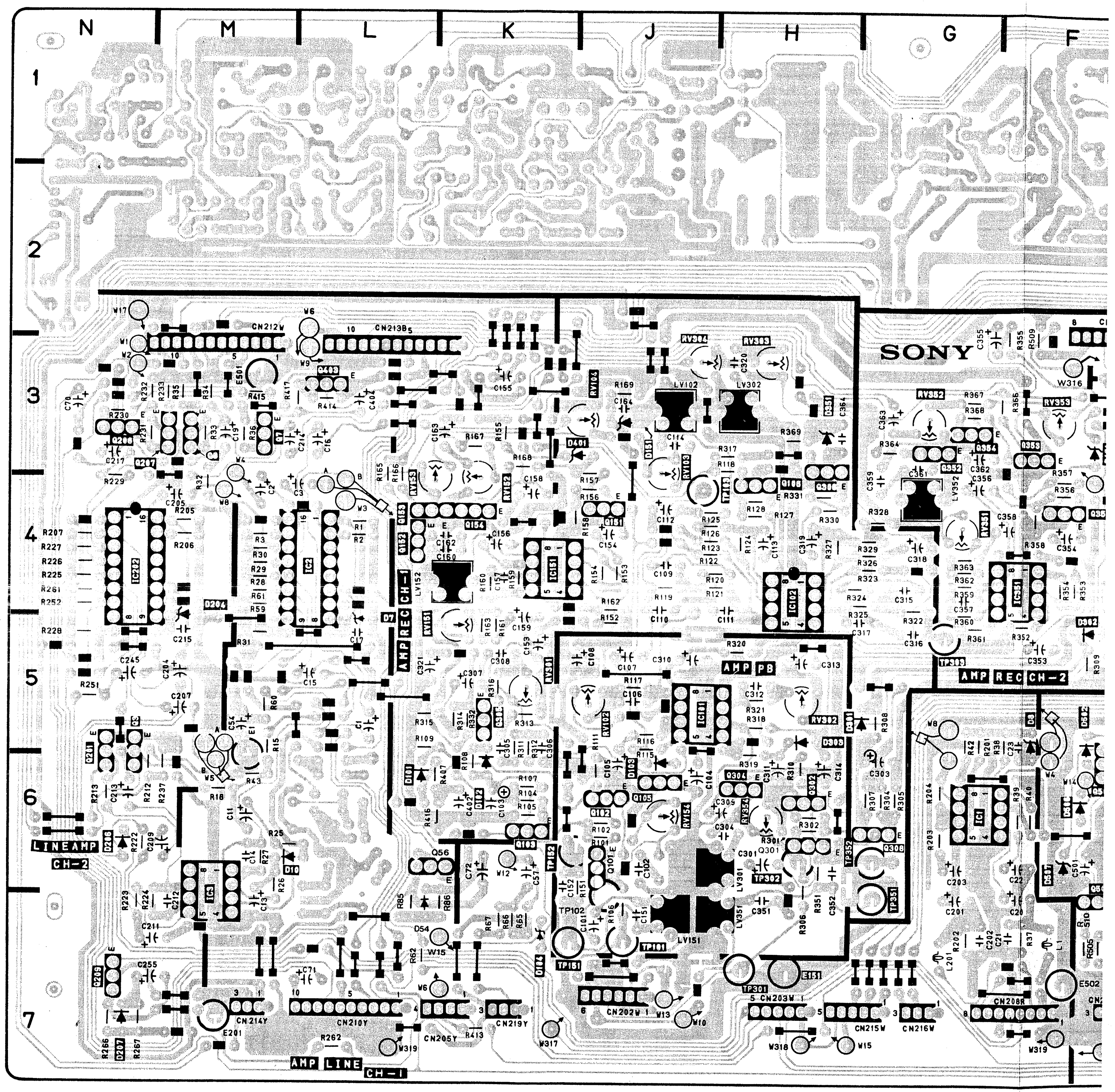
AU-124A: REC/PB AMPLIFIER, ERASE/BIAS OSCILLATOR

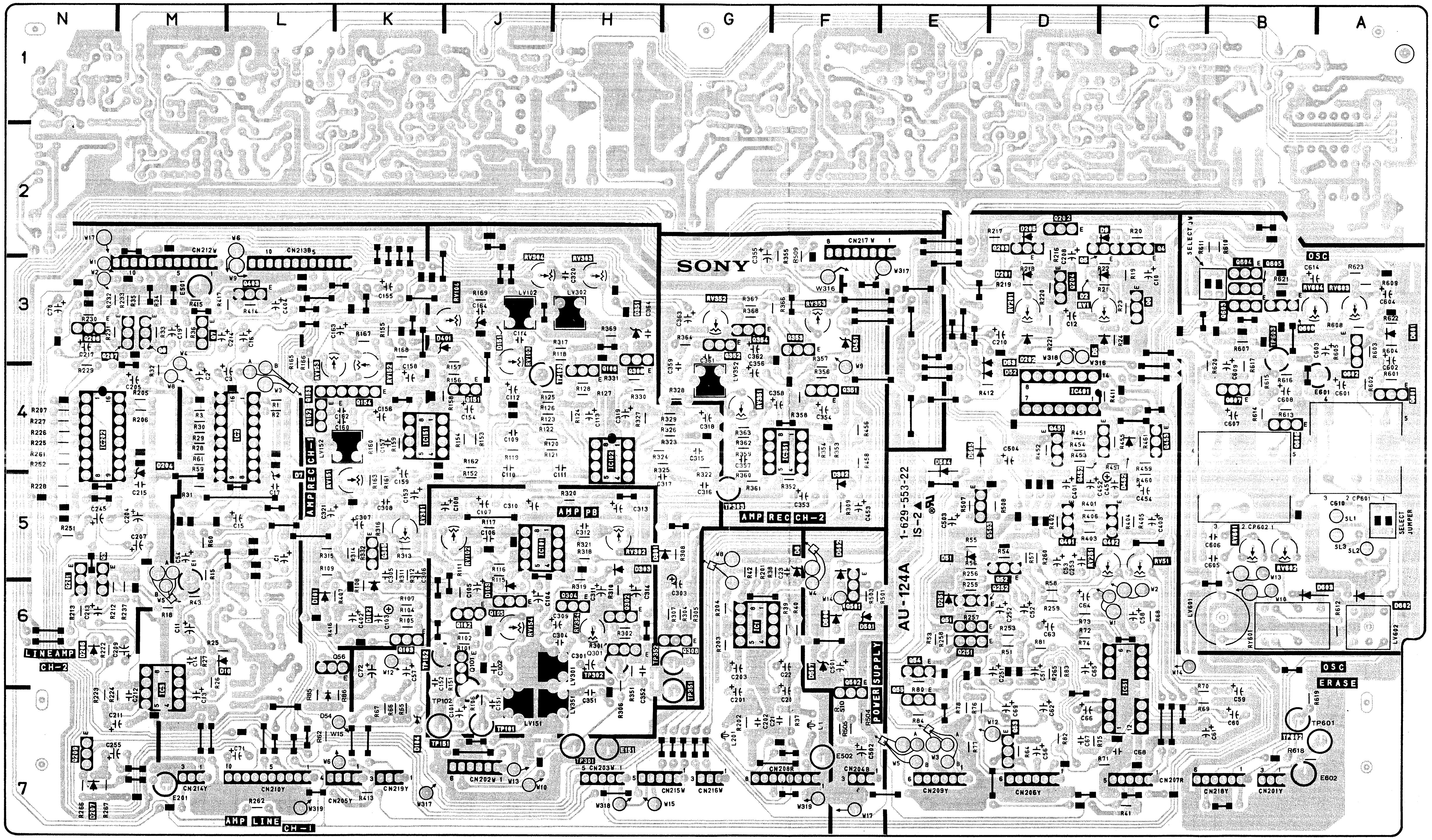
AU-124A (1-629-553-22) C

CN201	B-7
CN202	J-7
CN203	H-7
CN204	F-7
CN205	K-7
CN206	D-7
CN207	C-7
CN208	G-7
CN209	E-7
CN210	L-7
CN212	M-3
CN213	L-3
CN214	M-7
CN215	G-7
CN216	G-7
CN217	F-2
CN218	B-7
CN219	K-7
CP601	A-4
CP602	B-4
D2	C-2
D5	C-3
D7	L-5
D8	F-5
D9	C-2
D10	M-6
D51	E-5
D52	D-4
D53	D-3
D54	L-7
D101	L-6
D102	K-6
D103	J-6
D104	K-7
D151	J-3
D201	D-3
D202	D-3
D204	M-4
D205	D-2
D206	N-6
D207	N-7
D251	E-6
D301	G-5
D302	F-5
D303	H-5
D351	H-3
D401	J-3
D451	F-3
D452	C-4
D501	F-6
D502	F-5
D504	E-4
D505	E-4
D506	F-6
D507	F-6
D601	A-3
D602	A-6
D603	B-6
IC1	G-6
IC2	L-4
IC3	M-7
IC51	C-7
IC101	J-5
IC102	H-4
IC151	K-4
IC202	N-4
IC351	F-4
IC401	D-4
LV102	J-3
LV151	J-7
LV152	K-4
LV301	H-6
LV302	H-3
LV351	H-7
LV352	G-4
LV601	C-6
LV602	A-6
L1	F-7
L201	G-7
Q3	N-5
Q4	C-2
Q5	C-2
Q6	C-3
Q7	M-3
Q8	M-3
Q51	E-6
Q52	D-5
Q53	D-7
Q54	E-6
Q55	E-7
Q56	K-6
Q101	J-6
Q102	J-6
Q103	K-6
Q105	J-6
Q106	H-4
Q151	J-4
Q152	L-4
Q153	K-4
Q154	K-4
Q201	N-5
Q202	D-2
Q203	D-2
Q204	D-3
Q206	N-3
Q207	M-3
Q209	N-7
Q251	E-6
Q252	E-6
Q301	H-6
Q302	H-6
Q303	G-6
Q304	H-6
Q305	K-5
Q306	H-3
Q351	F-4
Q352	G-3
Q353	F-3
Q354	G-3
Q401	D-5
Q402	C-5
Q403	L-3
Q451	D-4
Q452	C-4
Q453	C-4
Q501	F-6
Q502	F-6
Q503	E-5
Q601	A-4
Q602	A-3
Q603	B-3
Q604	B-3
Q605	B-3
Q606	B-4
Q607	B-4
Q608	B-3
RV1	C-3
RV51	C-5
RV102	J-5
RV103	J-3
RV104	J-3
RV151	K-5
RV152	K-4
RV153	K-3
RV154	J-6
RV201	D-3
RV251	C-5
RV301	K-5
RV302	H-5
RV303	H-3
RV304	J-3
RV351	G-4
RV352	G-3
RV353	F-3
RV354	H-6
RV601	B-5
RV602	B-5
RV603	A-3
RV604	B-3
RY601	B-6

AU-124A (1-629-553-22) S

E1	M-5
E151	H-7
E201	M-7
E501	M-3
E502	F-7
E601	A-4
E602	A-7
TP101	J-7
TP102	J-7
TP103	H-4
TP151	K-7
TP152	K-6
TP301	H-7
TP302	H-6
TP303	G-5
TP351	G-6
TP352	H-6
TP601	A-7
TP602	B-7
TP603	B-3

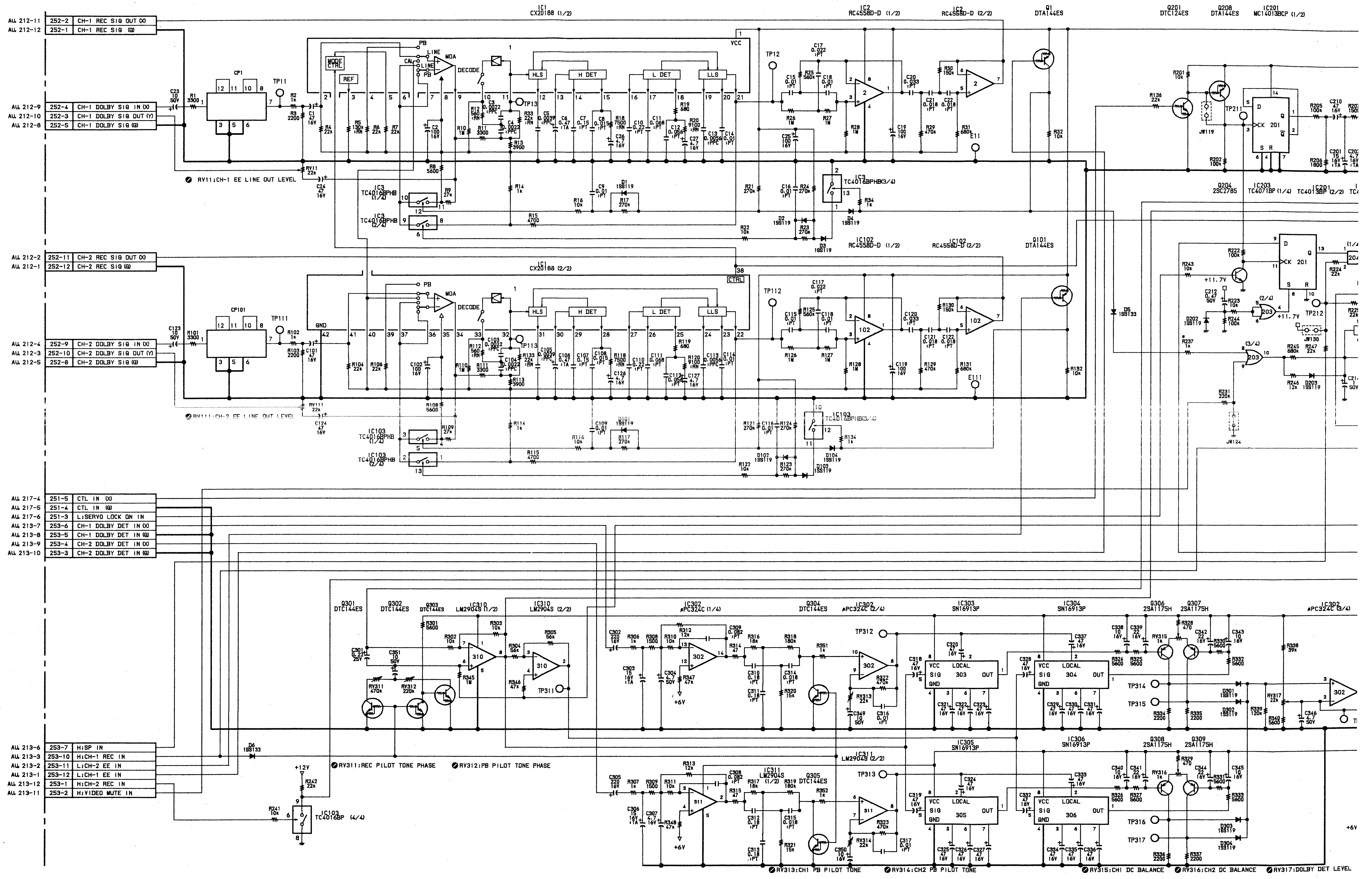


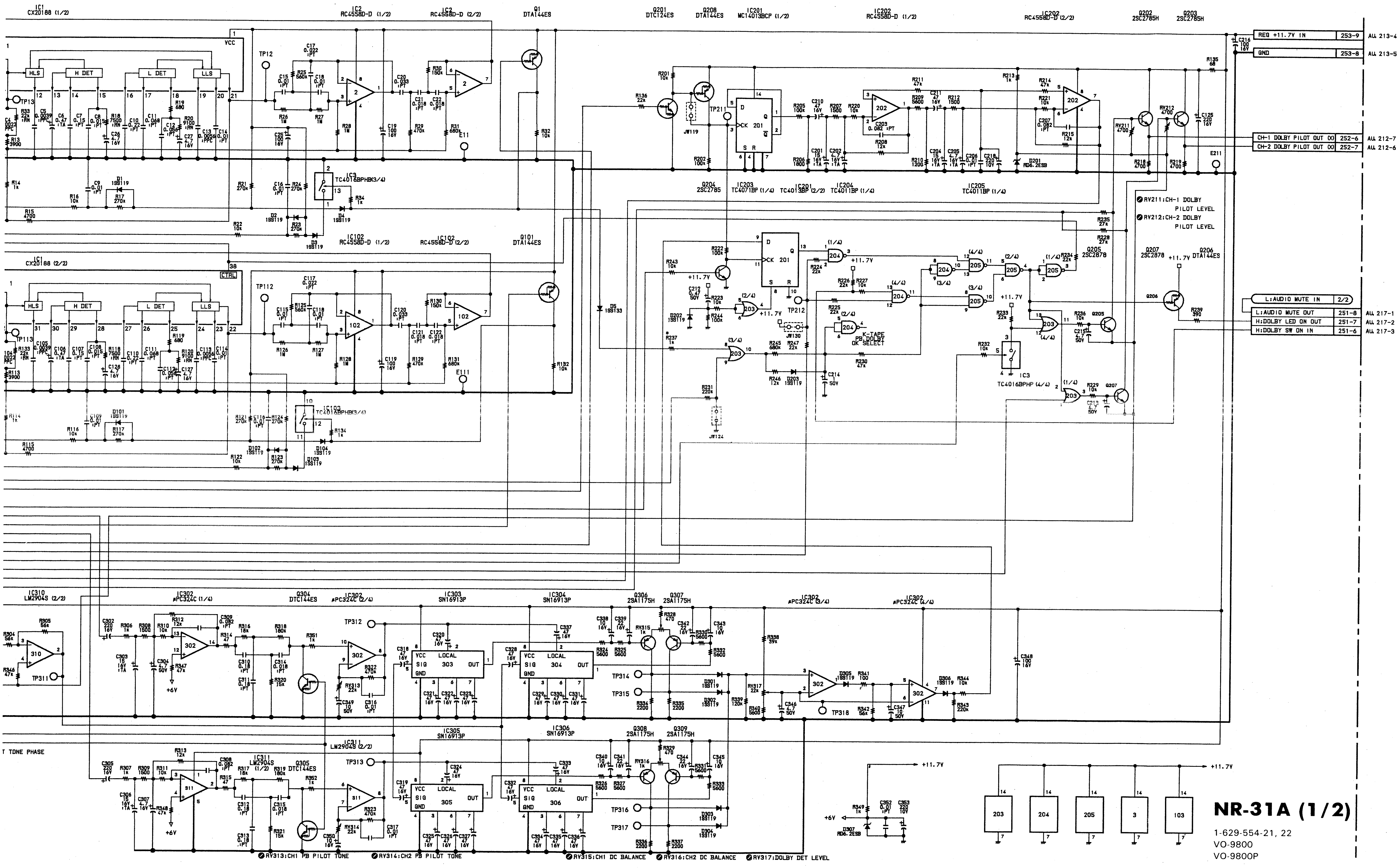


AU-124A

—SOLDERING SIDE—
1-629-553-22
VO-9800
VO-9800P

NR-31A (1/2): DOLBY NR, NR PILOT REC/DET

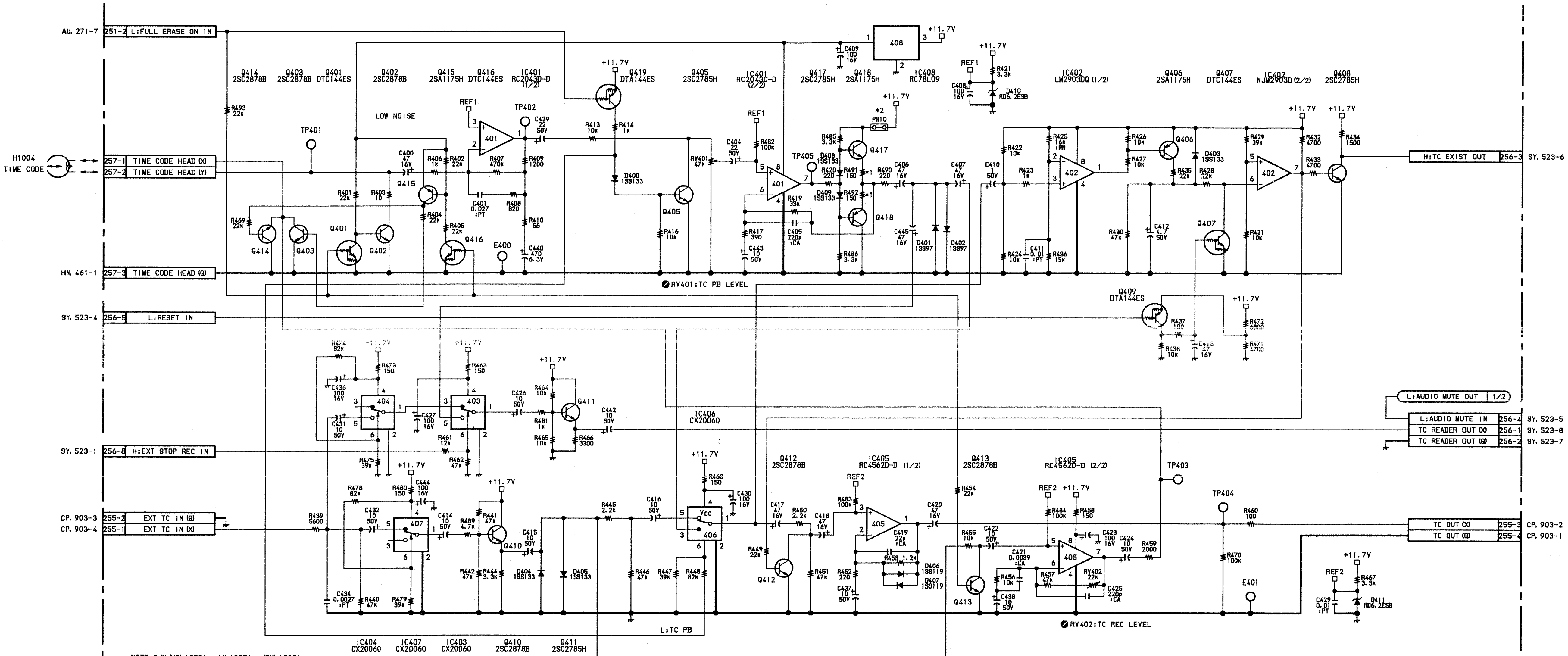

AU 212-11 252-2 CH-1 REC SIG OUT (X)
AU 212-12 252-1 CH-1 REC SIG (G)
AU 212-9 252-4 CH-1 DOLBY SIG IN (X)
AU 212-10 252-3 CH-1 DOLBY SIG OUT (Y)
AU 212-8 252-5 CH-1 DOLBY SIG (G)
AU 212-2 252-11 CH-2 REC SIG OUT (X)
AU 212-1 252-12 CH-2 REC SIG (G)
AU 212-4 252-9 CH-2 DOLBY SIG IN (X)
AU 212-3 252-10 CH-2 DOLBY SIG OUT (Y)
AU 212-5 252-8 CH-2 DOLBY SIG (G)
AU 217-4 251-5 CTL IN (X)
AU 217-5 251-4 CTL IN (G)
AU 217-6 251-3 L;SERVO LOCK ON IN
AU 213-7 253-6 CH-1 DOLBY DET IN (X)
AU 213-8 253-5 CH-1 DOLBY DET IN (G)
AU 213-9 253-4 CH-2 DOLBY DET IN (X)
AU 213-10 253-3 CH-2 DOLBY DET IN (G)
AU 213-6 253-7 H;SP IN
AU 213-3 253-10 H;CH-1 REC IN
AU 213-2 253-11 L;CH-2 EE IN
AU 213-1 253-12 L;CH-1 EE IN
AU 213-12 253-1 H;CH-2 REC IN
AU 213-11 253-2 H;VIDEO MUTE IN
IC1 CX20188 (1/2)
IC1 CX20188 (2/2)
IC2 RC4558D-D (1/2)
IC2 RC4558D-D (2/2)
IC102 RC4558D-D (1/2)
IC102 RC4558D-D (2/2)
Q1 DTA144ES
Q101 DTA144ES
Q201 DTC124ES
Q208 DTA144ES
IC201 MC14013BCP (1/2)
Q204 2SC2785
IC203 TC4071BP (1/4)
IC3 TC4016BPHB
IC103 TC4016BPHB
MODE CTRL
REF
LINE
CAL
PB
MOA
DECODE
HLS
H DET
L DET
LLS
VCC
CTRL
GND
TP11
TP12
TP13
TP111
TP112
TP113
TP211
TP212
E11
E111
RV11:CH-1 EE LINE OUT LEVEL
RV111:CH-2 EE LINE OUT LEVEL
Q301 DTC144ES
Q302 DTC144ES
Q303 DTC144ES
IC310 LM2904S (1/2)
IC310 LM2904S (2/2)
IC302 μPC324C (1/4)
Q304 DTC144ES
IC302 μPC324C (2/4)
IC303 SN16913P
IC304 SN16913P
Q306 2SA1175H
Q307 2SA1175H
IC302 μPC324C (3/4)
IC311 LM2904S (1/2)
Q305 DTC144ES
IC311 LM2904S (2/2)
IC305 SN16913P
IC306 SN16913P
Q308 2SA1175H
Q309 2SA1175H
IC103 TC4016BP (4/4)
VCC LOCAL SIG OUT GND
TP311
TP312
TP313
TP314
TP315
TP316
TP317
+12V
+6V
+11.7V
RV311:REC PILOT TONE PHASE
RV312:PB PILOT TONE PHASE
RV313:CH1 PB PILOT TONE
RV314:CH2 PB PILOT TONE
RV315:CH1 DC BALANCE
RV316:CH2 DC BALANCE
RV317:DOLBY DET LEVEL


IC1 CX20188 (1/2)
IC2 RC4558D-D (1/2)
IC2 RC4558D-D (2/2)
Q1 DTA144ES
Q201 DTC124ES
Q208 DTA144ES
IC201 MC14013BCP (1/2)
IC202 RC4558D-D (1/2)
IC202 RC4558D-D (2/2)
Q202 2SC2785H
Q203 2SC2785H
HLS
H DET
L DET
LLS
VCC
TP12
TP13
E11
IC3 TC4016BPH(3/4)
Q204 2SC2785
IC203 TC4071BP (1/4)
IC201 TC4013BP (2/2)
IC204 TC4011BP (1/4)
IC205 TC4011BP (1/4)
D201 RD6.2ESB
E211
REG +11.7V IN 253-9 AU 213-4
GND 253-8 AU 213-5
CH-1 DOLBY PILOT OUT 00 252-6 AU 212-7
CH-2 DOLBY PILOT OUT 00 252-7 AU 212-6
RV211: CH-1 DOLBY PILOT LEVEL
RV212: CH-2 DOLBY PILOT LEVEL
IC1 CX20188 (2/2)
IC102 RC4558D-D (1/2)
IC102 RC4558D-D (2/2)
Q101 DTA144ES
CTRL
TP112
TP113
E111
IC103 TC4016BPH(3/4)
D5 1SS133
TP211
TP212
JW119
JW130
JW124
K-TAPE PB DOLBY OK SELECT
Q205 2SC2878
Q207 2SC2878
Q206 DTA144ES
+11.7V
L: AUDIO MUTE IN 2/2
L: AUDIO MUTE OUT 251-8 AU 217-1
H: DOLBY LED ON OUT 251-7 AU 217-2
H: DOLBY SW ON IN 251-6 AU 217-3
IC3 TC4016BPHP (4/4)
IC310 LM2904S (2/2)
IC302 μPC324C (1/4)
Q304 DTC144ES
IC302 μPC324C (2/4)
IC303 SN16913P
IC304 SN16913P
Q306 2SA1175H
Q307 2SA1175H
IC302 μPC324C (3/4)
IC302 μPC324C (4/4)
TP311
TP312
TP314
TP315
TP318
VCC LOCAL SIG GND OUT
T TONE PHASE
IC311 LM2904S (2/2)
IC311 LM2904S (1/2)
Q305 DTC144ES
IC305 SN16913P
IC306 SN16913P
Q308 2SA1175H
Q309 2SA1175H
TP313
TP316
TP317
+6V
D307 RD6.2ESB
203 204 205 3 103
RV313: CH1 PB PILOT TONE
RV314: CH2 PB PILOT TONE
RV315: CH1 DC BALANCE
RV316: CH2 DC BALANCE
RV317: DOLBY DET LEVEL

NR-31A (1/2)

1-629-554-21, 22
VO-9800
VO-9800P

NR-31A (2/2): TIME CODE REC/PB AMPLIFIER


AU, 271-7
251-2 L:FULL ERASE ON IN
H1004 TIME CODE
257-1 TIME CODE HEAD (X)
257-2 TIME CODE HEAD (Y)
HN, 461-1
257-3 TIME CODE HEAD (G)
SY, 523-4
256-5 L:RESET IN
SY, 523-1
256-8 H:EXT STOP REC IN
CP, 903-3
255-2 EXT TC IN (G)
CP, 903-4
255-1 EXT TC IN (X)
Q414 2SC2878B
Q403 2SC2878B
Q401 DTC144ES
Q402 2SC2878B
Q415 2SA1175H
Q416 DTC144ES
IC401 RC2043D-D (1/2)
Q419 DTA144ES
Q405 2SC2785H
IC401 RC2043D-D (2/2)
Q417 2SC2785H
Q418 2SA1175H
IC408 RC78L09
IC402 LM2903DQ (1/2)
Q406 2SA1175H
Q407 DTC144ES
IC402 NJM2903D (2/2)
Q408 2SC2785H
LOW NOISE
TP401
TP402
TP405
E400
REF1
+11.7V
PS10
RV401:TC PB LEVEL
Q409 DTA144ES
256-3 H:TC EXIST OUT
SY, 523-6
L:AUDIO MUTE OUT 1/2
256-4 L:AUDIO MUTE IN
SY, 523-5
256-1 TC READER OUT (X)
SY, 523-8
256-2 TC READER OUT (G)
SY, 523-7
IC406 CX20060
Q411
Q412 2SC2878B
IC405 RC4562D-D (1/2)
Q413 2SC2878B
IC405 RC4562D-D (2/2)
REF2
TP403
TP404
E401
RV402:TC REC LEVEL
255-3 TC OUT (X)
CP, 903-2
255-4 TC OUT (G)
CP, 903-1
L:TC PB
IC404 CX20060
IC407 CX20060
IC403 CX20060
Q410 2SC2878B
Q411 2SC2785H

NOTE:S/N (UC) 10781-, (J) 10051-, (EK) 10001-

MARK	CHANGE INFORMATION
*1	R491, 492 CHANGED:10→150
*2	PS10 ADDED

NR-31A (2/2)

1-629-554-21, 22
VO-9800
VO-9800P

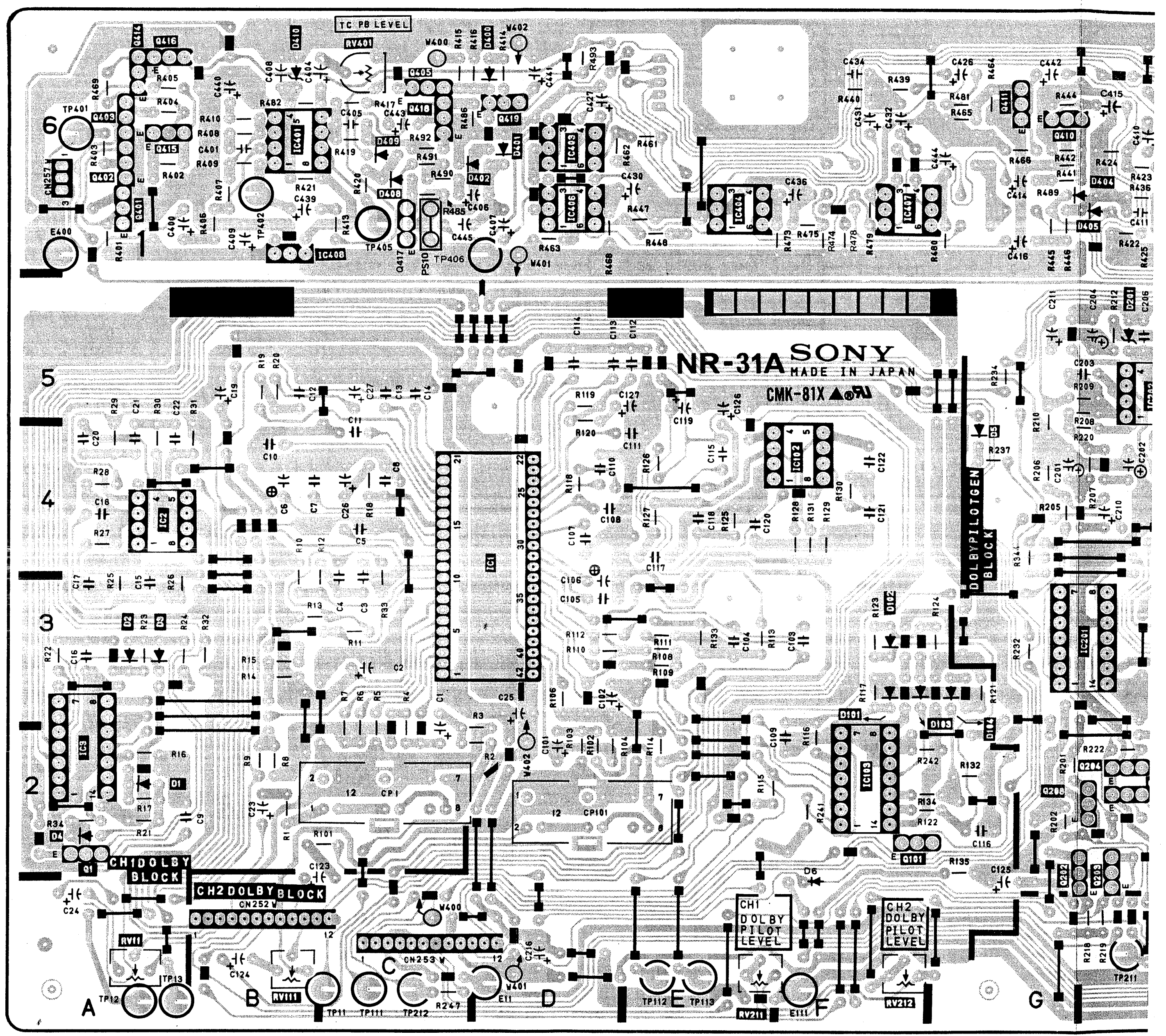
NR-31A : DOLBY NR, NR PILOT REC/DET

NR-31A (1-629-554-22) C

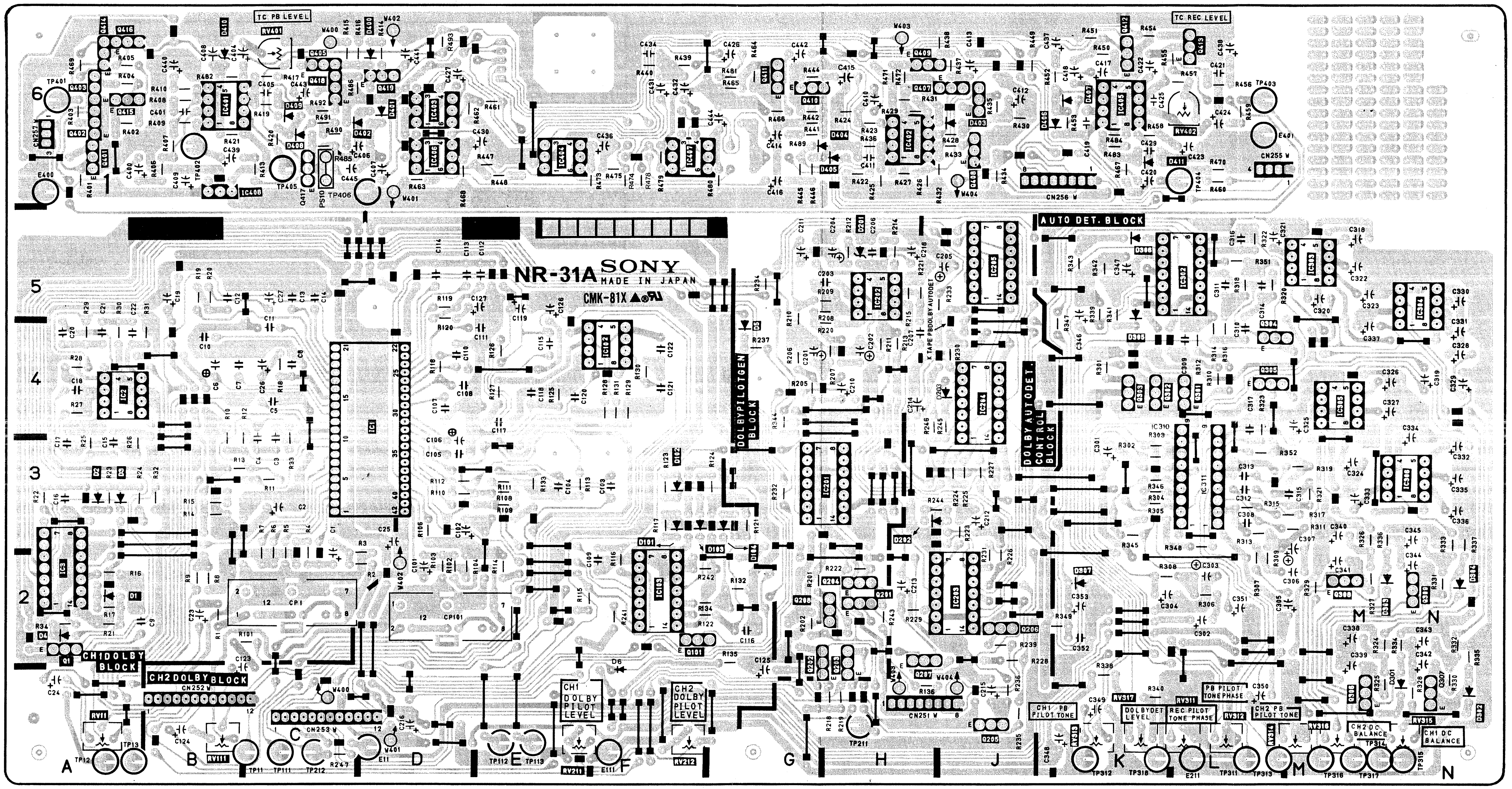
CN251	H-1	IC403	D-6
CN252	B-1	IC404	E-6
CN253	C-1	IC405	K-6
CN255	L-6	IC406	D-6
CN256	K-6	IC407	F-6
CN257	A-6	IC408	B-6
CP1	C-2	PS10	C-6
CP101	D-2		
		Q1	A-2
D1	A-2	Q101	F-2
D2	A-3	Q201	H-2
D3	A-3	Q202	H-2
D4	A-2	Q203	H-2
D5	G-4	Q204	H-2
D6	F-1	Q205	J-1
D101	F-3	Q206	J-2
D102	F-3	Q207	H-2
D103	F-3	Q208	H-2
D104	G-3	Q301	L-4
D201	H-5	Q302	K-4
D202	H-3	Q303	K-4
D203	J-4	Q304	L-4
D301	M-1	Q305	L-4
D302	N-1	Q306	M-1
D303	M-2	Q307	N-1
D304	N-2	Q308	M-2
D305	K-5	Q309	N-2
D306	K-5	Q401	A-6
D307	K-2	Q402	A-6
D400	D-6	Q403	A-6
D401	D-6	Q405	C-6
D402	C-6	Q406	J-6
D403	J-6	Q407	J-6
D404	H-6	Q408	J-6
D405	H-6	Q409	H-6
D406	K-6	Q410	G-6
D407	K-6	Q411	G-6
D408	C-6	Q412	K-6
D409	C-6	Q413	L-6
D410	B-6	Q414	A-6
D411	K-6	Q415	A-6
		Q416	A-6
IC1	C-4	Q417	C-6
IC2	A-4	Q418	C-6
IC3	A-2	Q419	D-6
IC102	F-4		
IC103	F-2	RV11	A-1
IC201	H-3	RV111	B-1
IC202	H-5	RV211	E-1
IC203	J-2	RV212	F-1
IC204	J-4	RV311	L-1
IC205	J-5	RV312	L-1
IC302	L-5	RV313	K-1
IC303	M-5	RV314	M-1
IC304	N-5	RV315	N-1
IC305	M-4	RV316	M-1
IC306	N-3	RV317	K-1
IC310	L-3	RV401	C-6
IC311	L-3	RV402	L-6
IC401	B-6		
IC402	H-6		

NR-31 (1-629-554-22) S

D6	F-1
E11	D-1
E111	F-1
E211	L-1
E400	A-6
E401	L-6


NR-31A SONY
MADE IN JAPAN
CMK-81X
TC PB LEVEL
CH1 DOLBY BLOCK
CH2 DOLBY BLOCK
DOLBY PILOT GEN BLOCK
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
CN252
CN253
IC1
CP1
CP101
RV11
RV111
RV211
RV212
RV401
E400
E11
E111
TP12
TP13
TP11
TP111
TP212
TP112
TP113
TP211
TP401
TP402
TP405
TP406
PS10
A
B
C
D
E
F
G
2
3
4
5
6

54-22) S


TC PB LEVEL
TC REC LEVEL
NR-31A SONY MADE IN JAPAN
CMK-81X
AUTO DET. BLOCK
DOLBY PILOT GEN BLOCK
DOLBY AUTO DET. CONTROL BLOCK
CH1 DOLBY BLOCK
CH2 DOLBY BLOCK
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
CH1 PB PILOT TONE
DOLBY DET LEVEL
REC PILOT TONE PHASE
PB PILOT TONE PHASE
CH2 PB PILOT TONE
CH2 DC BALANCE
CH1 DC BALANCE
1
2
3
4
5
6
A
B
C
D
E
F
G
H
J
K
L
M
N

NR-31A

—SOLDERING SIDE—
1-629-554-22
VO-9800
VO-9800P

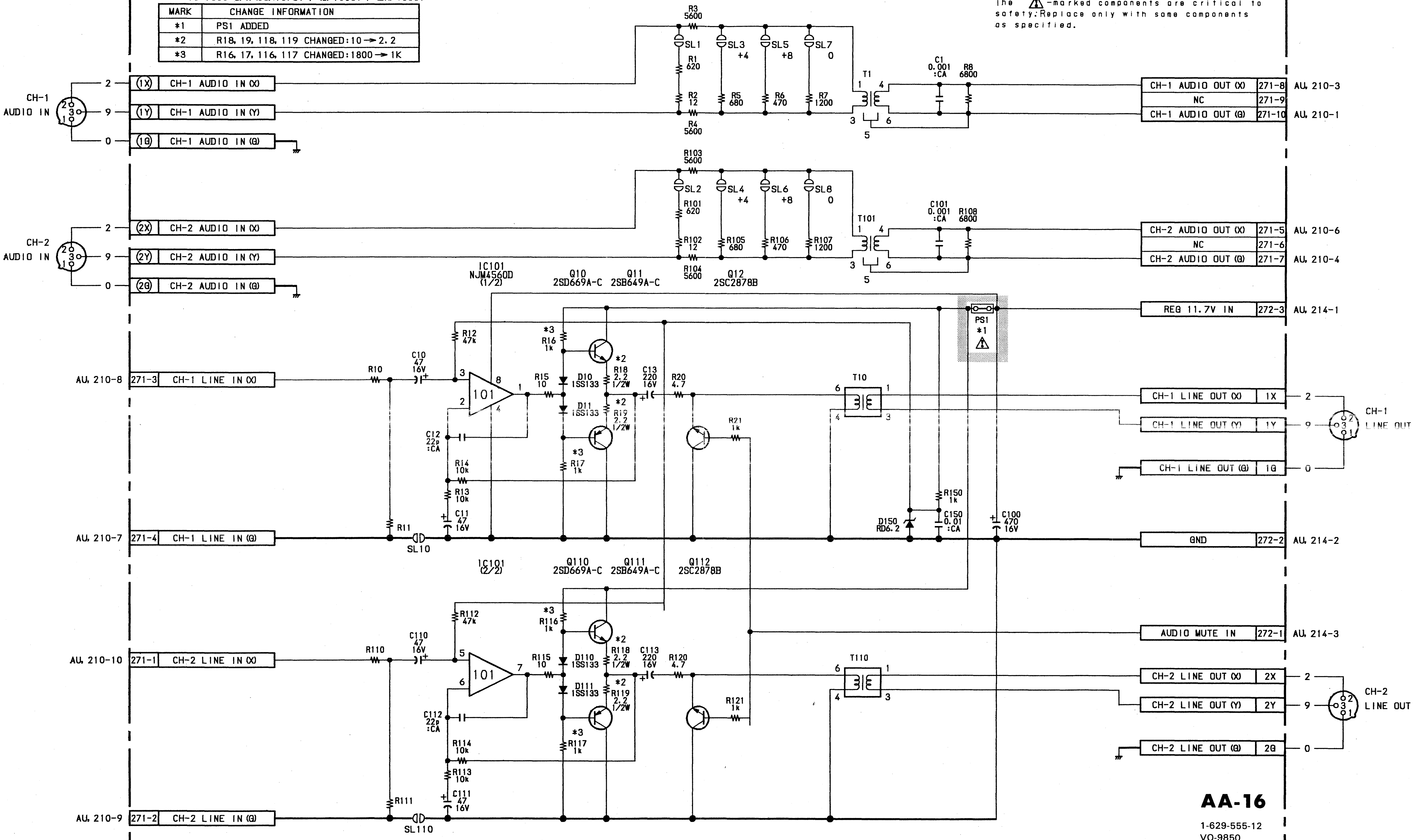
AA-16: CONNECTOR

NOTE:VO-9850 S/N (UC) 10721-, (J) 10051-, (EK) 10001-
VO-9800 S/N (UC) 10781-, (J) 10051-, (EK) 10001-

MARK	CHANGE INFORMATION
*1	PS1 ADDED
*2	R18, 19, 118, 119 CHANGED:10 → 2.2
*3	R16, 17, 116, 117 CHANGED:1800 → 1K

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

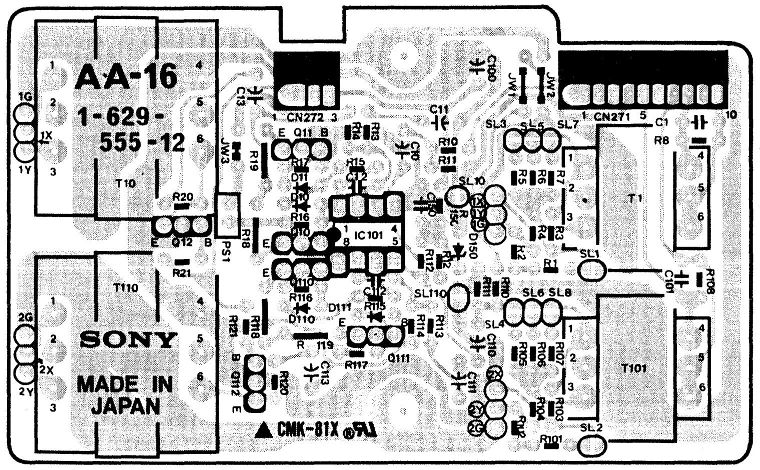
NOTE:
The ⚠-marked components are critical to safety: Replace only with same components as specified.


CH-1 AUDIO IN
2
9
0
1X CH-1 AUDIO IN (X)
1Y CH-1 AUDIO IN (Y)
1G CH-1 AUDIO IN (G)
R3 5600
SL1
SL3 +4
SL5 +8
SL7 0
R1 620
R2 12
R5 680
R6 470
R7 1200
R4 5600
T1
1 4 3 6 5
C1 0.001 :CA
R8 6800
CH-1 AUDIO OUT (X) 271-8 AU, 210-3
NC 271-9
CH-1 AUDIO OUT (G) 271-10 AU, 210-1
CH-2 AUDIO IN
2X CH-2 AUDIO IN (X)
2Y CH-2 AUDIO IN (Y)
2G CH-2 AUDIO IN (G)
R103 5600
SL2
SL4 +4
SL6 +8
SL8 0
R101 620
R102 12
R105 680
R106 470
R107 1200
R104 5600
T101
C101 0.001 :CA
R108 6800
CH-2 AUDIO OUT (X) 271-5 AU, 210-6
NC 271-6
CH-2 AUDIO OUT (G) 271-7 AU, 210-4
IC101 NJM4560D (1/2)
Q10 2SD669A-C
Q11 2SB649A-C
Q12 2SC2878B
REG 11.7V IN 272-3 AU, 214-1
PS1 *1 ⚠
R12 47k
*3 R16 1k
*2 R18 2.2 1/2W
AU, 210-8 271-3 CH-1 LINE IN (X)
R10
C10 47 16V
101
R15 10
D10 1SS133
D11 1SS133
C13 220 16V
R20 4.7
*2 R19 2.2 1/2W
T10
C12 22p :CA
R14 10k
*3 R17 1k
R21 1k
CH-1 LINE OUT (X) 1X
CH-1 LINE OUT (Y) 1Y
CH-1 LINE OUT (G) 1G
CH-1 LINE OUT
R13 10k
C11 47 16V
R150 1k
C150 0.01 :CA
D150 RD6.2
C100 470 16V
AU, 210-7 271-4 CH-1 LINE IN (G)
R11
SL10
GND 272-2 AU, 214-2
IC101 (2/2)
Q110 2SD669A-C
Q111 2SB649A-C
Q112 2SC2878B
R112 47k
*3 R116 1k
AUDIO MUTE IN 272-1 AU, 214-3
AU, 210-10 271-1 CH-2 LINE IN (X)
R110
C110 47 16V
R115 10
D110 1SS133
D111 1SS133
*2 R118 2.2 1/2W
C113 220 16V
R120 4.7
*2 R119 2.2 1/2W
T110
C112 22p :CA
R114 10k
*3 R117 1k
R121 1k
CH-2 LINE OUT (X) 2X
CH-2 LINE OUT (Y) 2Y
CH-2 LINE OUT (G) 2G
CH-2 LINE OUT
R113 10k
C111 47 16V
AU, 210-9 271-2 CH-2 LINE IN (G)
R111
SL110

AA-16

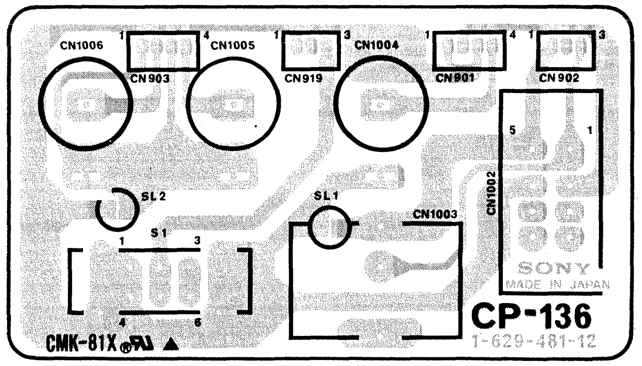
1-629-555-12
VO-9850
VO-9850P
VO-9800
VO-9800P

AA-16: CONNECTOR
CP-136: MONITOR OUT, EXT IN/OUT


AA-16
1-629-555-12
1G
1X
1Y
2G
2X
2Y
T10
T110
SONY
MADE IN JAPAN
CN272
CN271
C13
C100
C11
C10
C1
R8
JW1
JW2
JW3
Q11
Q12
Q110
Q111
Q112
E
B
R19
R20
R21
R18
PS1
R17
R16
R15
R14
R13
R10
R11
D11
D10
D110
D111
C12
C112
C113
C110
C111
C101
IC101
R116
R115
R117
R118
R121
R120
R119
R112
R114
R113
R110
R111
R150
D150
SL1
SL2
SL3
SL4
SL5
SL6
SL7
SL8
SL10
SL110
R1
R2
R3
R4
R5
R6
R7
R101
R102
R103
R104
R105
R106
R107
R108
T1
T101
CMK-81X

AA-16

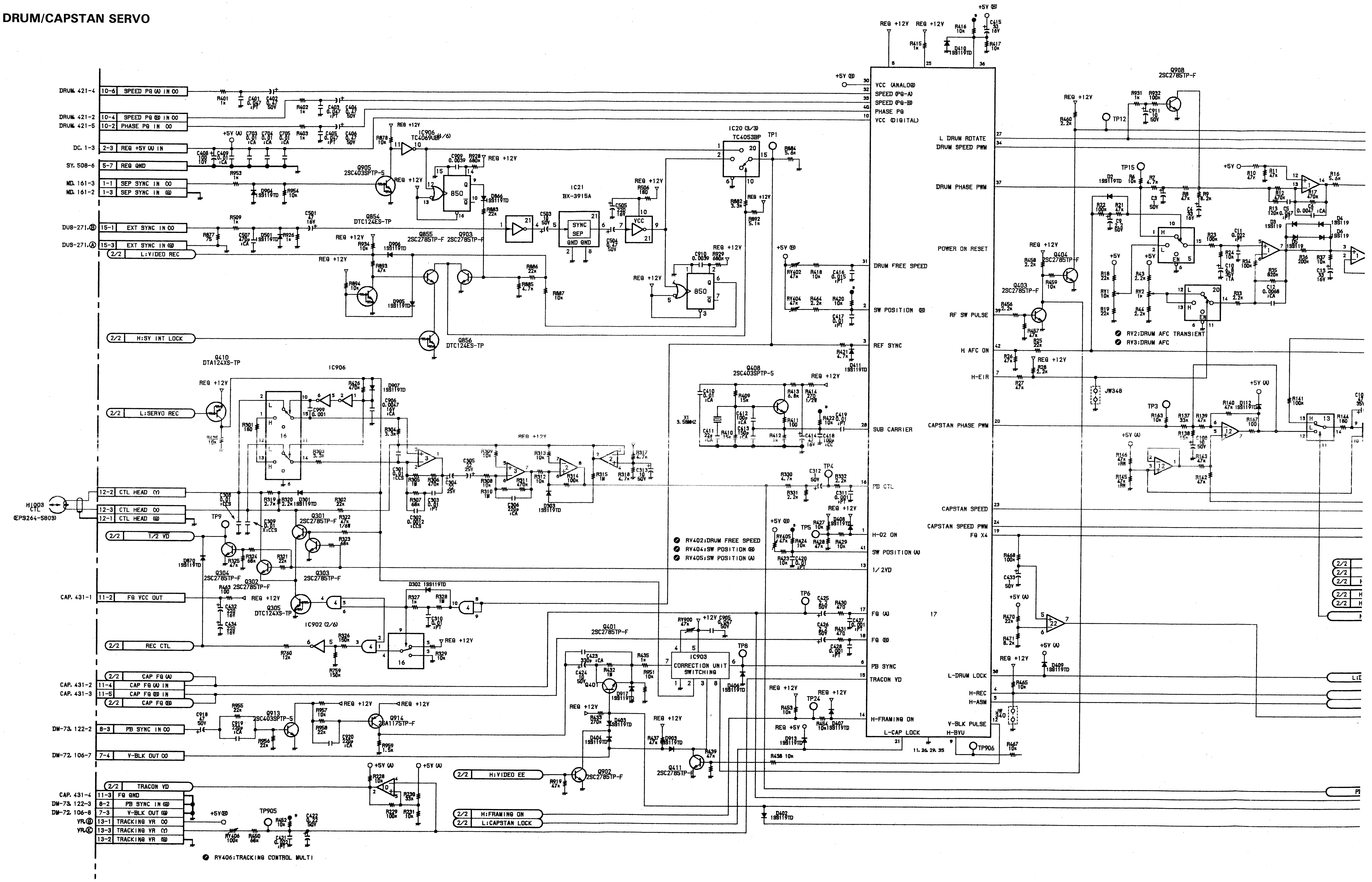
—SOLDERING SIDE—
1-629-555-12
VO-9850
VO-9850P
VO-9800
VO-9800P

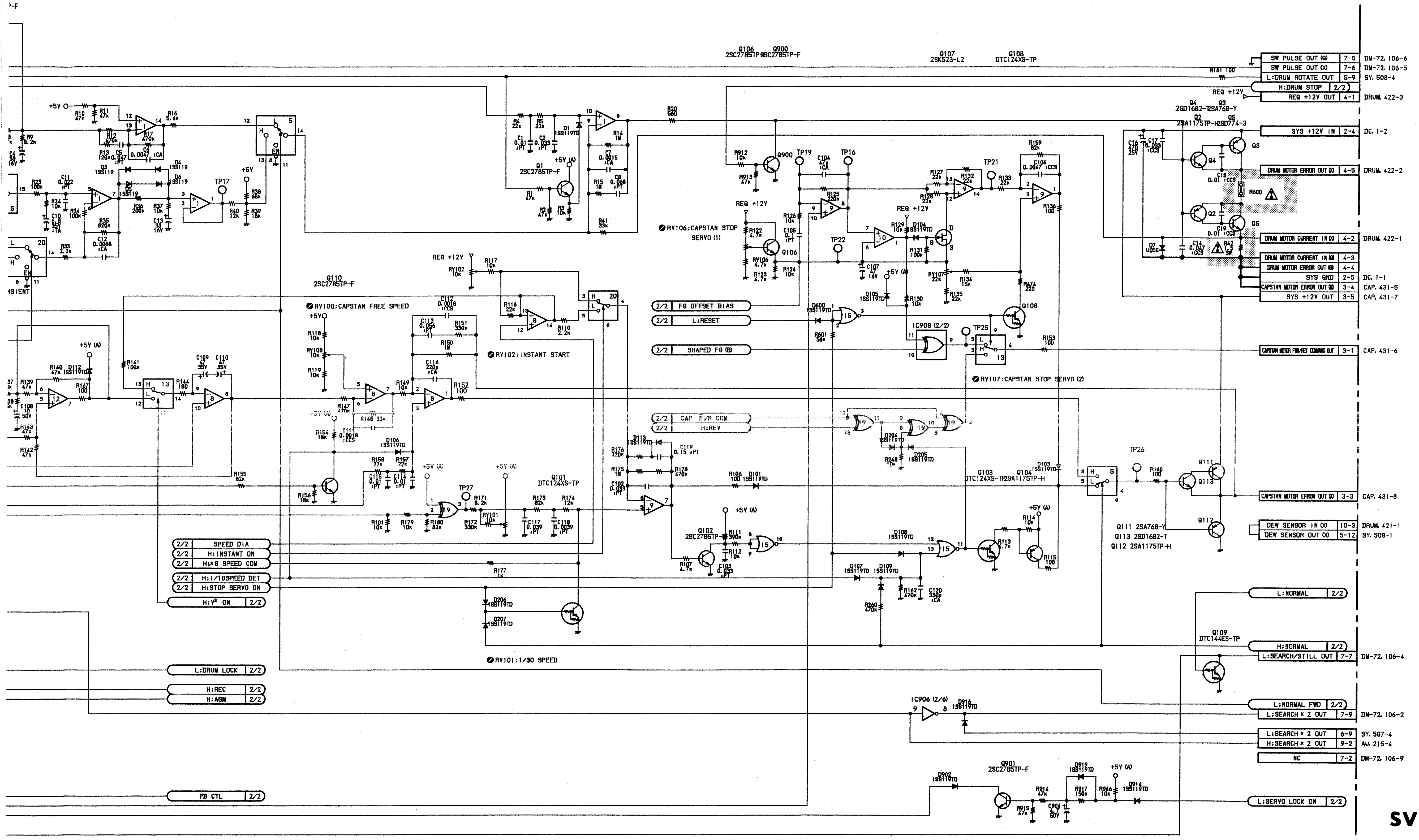

CN1006
CN1005
CN1004
CN903
CN919
CN901
CN902
CN1002
CN1003
SL1
SL2
S1
SONY
MADE IN JAPAN
CP-136
1-629-481-12
CMK-81X

CP-136

—SOLDERING SIDE—
1-629-481-12
VO-9850
VO-9850P
VO-9800
VO-9800P

SV-112C (1/2): DRUM/CAPSTAN SERVO


DRUM 421-4 10-6 SPEED PG (A) IN (X)
DRUM 421-2 10-4 SPEED PG (B) IN (X)
DRUM 421-5 10-2 PHASE PG IN (X)
DC 1-3 2-3 REG +5V (A) IN
SY 508-6 5-7 REG GND
MD 161-3 1-1 SEP SYNC IN (X)
MD 161-2 1-3 SEP SYNC IN (G)
DUB-271 15-1 EXT SYNC IN (X)
DUS-271 15-3 EXT SYNC IN (G)
2/2 L:VIDEO REC
2/2 H:SV INT LOCK
2/2 L:SERVO REC
H1003 CTL (EP9264-S80S)
12-2 CTL HEAD (Y)
12-3 CTL HEAD (X)
12-1 CTL HEAD (G)
2/2 1/2 VD
CAP 431-1 11-2 FG VCC OUT
2/2 REC CTL
2/2 CAP FG (A)
CAP 431-2 11-4 CAP FG (A) IN
CAP 431-3 11-5 CAP FG (B) IN
2/2 CAP FG (B)
DM-73 122-2 8-3 PB SYNC IN (X)
DM-72 106-7 7-4 V-BLK OUT (X)
2/2 TRACON VD
CAP 431-4 11-3 FG GND
DM-73 122-3 8-2 PB SYNC IN (G)
DM-72 106-8 7-3 V-BLK OUT (G)
YR 13-1 TRACKING VR (X)
YR 13-3 TRACKING VR (Y)
13-2 TRACKING VR (G)
RV406:TRACKING CONTROL MULTI
IC20 (3/3) TC4053BP
IC21 BX-3915A
SYNC SEP
IC906 TC4069UBP
Q905 2SC403SPTP-5
Q854 DTC124ES-TP
Q855 2SC2785TP-F
Q903 2SC2785TP-F
Q856 DTC124ES-TP
Q410 DTA124XS-TP
Q408 2SC403SPTP-5
X1 3.58MHz
Q301 2SC2785TP-F
Q302 2SC2785TP-F
Q303 2SC2785TP-F
Q304 2SC2785TP-F
Q305 DTC124XS-TP
IC902 (2/6)
Q401 2SC2785TP-F
IC903 CORRECTION UNIT SWITCHING
Q913 2SC403SPTP-5
Q914 2SA1175TP-F
Q902 2SC2785TP-F
Q411 2SC2785TP-F
2/2 H:VIDEO EE
2/2 H:FRAMING ON
2/2 L:CAPSTAN LOCK
RV402:DRUM FREE SPEED
RV404:SW POSITION (B)
RV405:SW POSITION (A)
VCC (ANALOG)
SPEED (PG-A)
SPEED (PG-B)
PHASE PG
VCC (DIGITAL)
DRUM FREE SPEED
SW POSITION (B)
REF SYNC
SUB CARRIER
PB CTL
H-02 ON
SW POSITION (A)
1/2VD
FG (A)
FG (B)
PB SYNC
TRACON VD
H-FRAMING ON
L-CAP LOCK
H-BVU
L DRUM ROTATE
DRUM SPEED PWM
DRUM PHASE PWM
POWER ON RESET
RF SW PULSE
H AFC ON
H-EIR
CAPSTAN PHASE PWM
CAPSTAN SPEED
CAPSTAN SPEED PWM
FG X4
L-DRUM LOCK
H-REC
H-ASM
V-BLK PULSE
Q908 2SC2785TP-F
Q404 2SC2785TP-F
Q403 2SC2785TP-F
RV2:DRUM AFC TRANSIENT
RV3:DRUM AFC
JW348
TP1
TP3
TP4
TP5
TP6
TP8
TP9
TP12
TP15
TP24
TP905
TP906

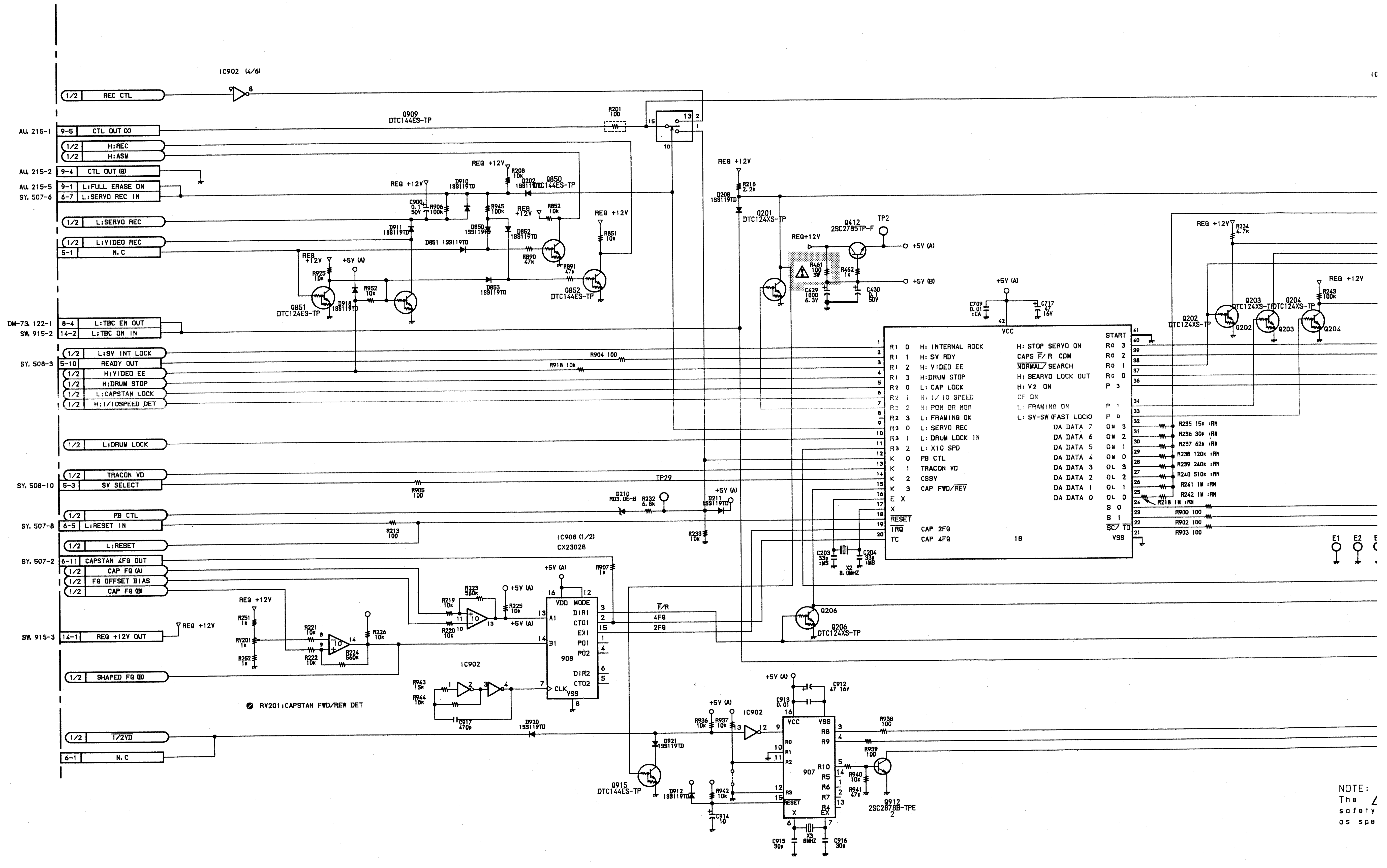

SW PULSE OUT (B) 7-5 DM-72, 106-6
SW PULSE OUT (A) 7-6 DM-72, 106-5
L:DRUM ROTATE OUT 5-9 SY, 508-4
H:DRUM STOP 2/2
REG +12V OUT 4-1 DRUM, 422-3
SYS +12V IN 2-4 DC, 1-2
DRUM MOTOR ERROR OUT (A) 4-5 DRUM, 422-2
DRUM MOTOR CURRENT IN (A) 4-2 DRUM, 422-1
DRUM MOTOR CURRENT IN (B) 4-3
DRUM MOTOR ERROR OUT (B) 4-4
SYS GND 2-5 DC, 1-1
CAPSTAN MOTOR ERROR OUT (B) 3-4 CAP, 431-5
SYS +12V OUT 3-5 CAP, 431-7
CAPSTAN MOTOR FWD/REV COMMAND OUT 3-1 CAP, 431-6
CAPSTAN MOTOR ERROR OUT (A) 3-3 CAP, 431-8
DEW SENSOR IN (A) 10-3 DRUM, 421-1
DEW SENSOR OUT (A) 5-12 SY, 508-1
L:NORMAL 2/2
H:NORMAL 2/2
L:SEARCH/STILL OUT 7-7 DM-72, 106-4
L:NORMAL FWD 2/2
L:SEARCH×2 OUT 7-9 DM-72, 106-2
L:SEARCH×2 OUT 6-9 SY, 507-4
H:SEARCH×2 OUT 9-2 AU, 215-4
NC 7-2 DM-72, 106-9
L:SERVO LOCK ON 2/2
2/2 FG OFFSET BIAS
2/2 L:RESET
2/2 SHAPED FG (B)
2/2 CAP F/R COM
2/2 H:REV
2/2 SPEED DIA
2/2 H:INSTANT ON
2/2 H:×8 SPEED COM
2/2 H:1/10SPEED DET
2/2 H:STOP SERVO ON
H:V² ON 2/2
L:DRUM LOCK 2/2
H:REC 2/2
H:ASM 2/2
PB CTL 2/2
RV100:CAPSTAN FREE SPEED
RV101:1/30 SPEED
RV102:INSTANT START
RV106:CAPSTAN STOP SERVO (1)
RV107:CAPSTAN STOP SERVO (2)
Q106 2SC2785TP-F
Q900 2SC2785TP-F
Q107 2SK523-L2
Q108 DTC124XS-TP
Q110 2SC2785TP-F
Q1 2SC2785TP-F
Q4 2SD1682-T
Q3 2SA768-Y
Q2 2SA1175TP-H
Q5 2SD774-3
Q101 DTC124XS-TP
Q102 2SC2785TP-F
Q103 DTC124XS-TP
Q104 2SA1175TP-H
Q111 2SA768-Y
Q113 2SD1682-T
Q112 2SA1175TP-H
Q109 DTC144ES-TP
Q901 2SC2785TP-F
IC908 (2/2)
IC906 (2/6)
R600
TP17 TP19 TP16 TP21 TP22 TP25 TP26 TP27
REG +12V
+5V
+5V (A)

SV-112C (1/2)

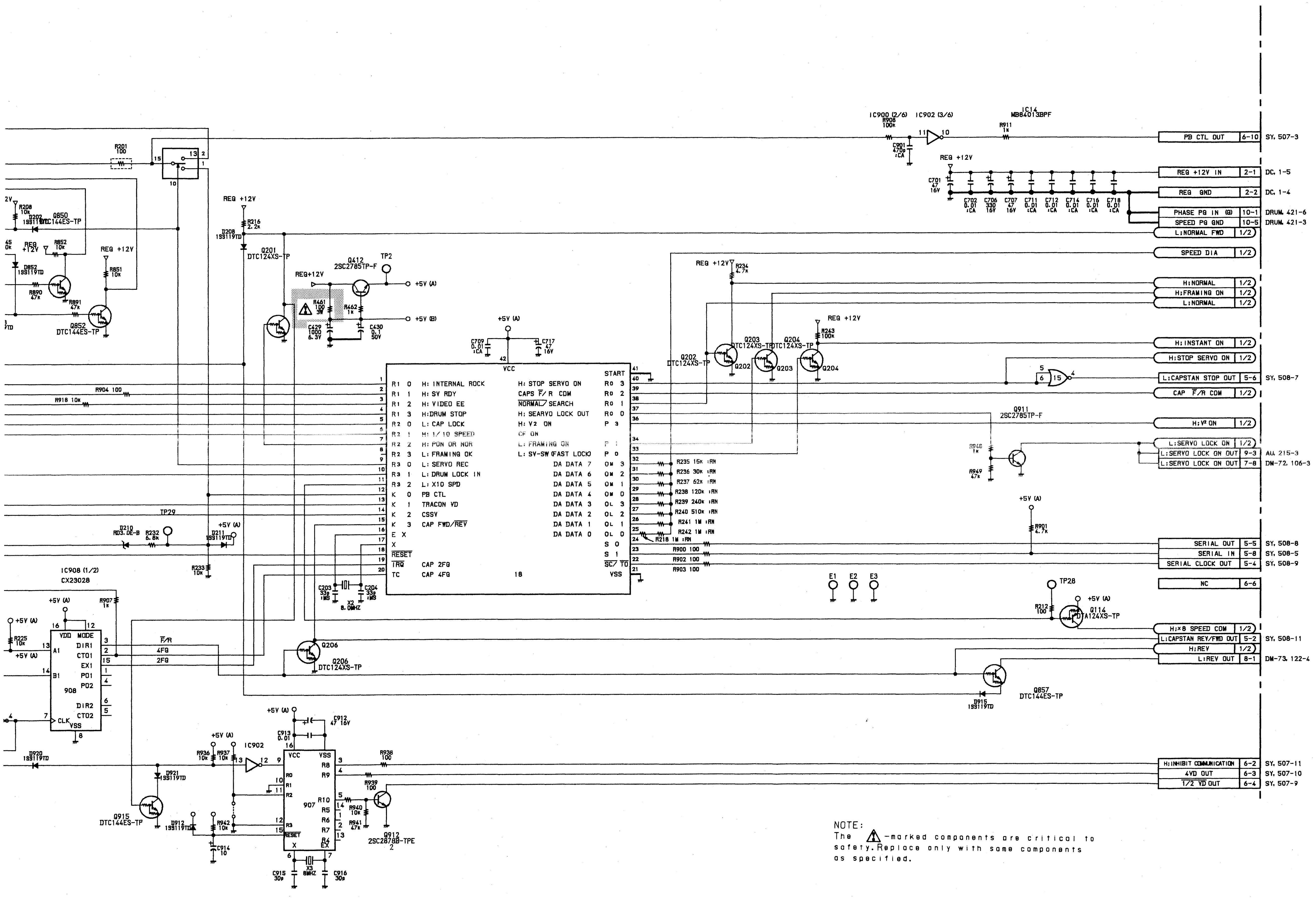
1-629-566-42
VO-9800P

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

SV-112C (2/2): SERVO CONTROL


IC902 (4/6)
1/2 REC CTL
AU, 215-1 9-5 CTL OUT (X)
1/2 H:REC
1/2 H:ASM
AU, 215-2 9-4 CTL OUT (B)
AU, 215-5 9-1 L:FULL ERASE ON
SY, 507-6 6-7 L:SERVO REC IN
1/2 L:SERVO REC
1/2 L:VIDEO REC
5-1 N.C
DM-73, 122-1 8-4 L:TBC EN OUT
SW, 915-2 14-2 L:TBC ON IN
1/2 L:SV INT LOCK
SY, 508-3 5-10 READY OUT
1/2 H:VIDEO EE
1/2 H:DRUM STOP
1/2 L:CAPSTAN LOCK
1/2 H:1/10SPEED DET
1/2 L:DRUM LOCK
1/2 TRACON VD
SY, 508-10 5-3 SV SELECT
1/2 PB CTL
SY, 507-8 6-5 L:RESET IN
1/2 L:RESET
SY, 507-2 6-11 CAPSTAN 4FG OUT
1/2 CAP FG (A)
1/2 FG OFFSET BIAS
1/2 CAP FG (B)
SW, 915-3 14-1 REG +12V OUT
1/2 SHAPED FG (B)
1/2 T/2VD
6-1 N.C
Q909 DTC144ES-TP
R201 100
Q850 DTC144ES-TP
Q851 DTC124ES-TP
Q852 DTC144ES-TP
D910 1SS119TD
D911 1SS119TD
D918 1SS119TD
D850 1SS119TD
D851 1SS119TD
D852 1SS119TD
D853 1SS119TD
D202 1SS119TD
D208 1SS119TD
R208 10k
R216 2.2k
Q201 DTC124XS-TP
Q412 2SC2785TP-F
TP2
R461 100 3W
R462 1k
C429 1000 6.3V
C430 0.1 50V
+5V (A)
+5V (B)
REG +12V
C709 0.01
C717 47 16V
VCC
START
R1 0 H: INTERNAL ROCK
R1 1 H: SV RDY
R1 2 H: VIDEO EE
R1 3 H:DRUM STOP
R2 0 L: CAP LOCK
R2 1 H: 1/10 SPEED
R2 2 H: PON OR NOR
R2 3 L: FRAMING OK
R3 0 L: SERVO REC
R3 1 L: DRUM LOCK IN
R3 2 L: X10 SPD
K 0 PB CTL
K 1 TRACON VD
K 2 CSSY
K 3 CAP FWD/REV
EX
X
RESET
IRQ CAP 2FG
TC CAP 4FG
18
H: STOP SERVO ON
CAPS F/R CDM
NORMAL/ SEARCH
H: SEARVO LOCK OUT
H: V2 ON
CF ON
L: FRAMING ON
L: SY-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
R0 3
R0 2
R0 1
R0 0
P 3
P 1
P 0
OM 3
OM 2
OM 1
OM 0
OL 3
OL 2
OL 1
OL 0
S 0
S 1
SC/ TO
VSS
R235 15k
R236 30k
R237 62k
R238 120k
R239 240k
R240 510k
R241 1M
R242 1M
R218 1M
R900 100
R902 100
R903 100
R234 4.7k
R243 100k
Q202 DTC124XS-TP
Q203 DTC124XS-TP
Q204 DTC124XS-TP
C203 33p
C204 33p
X2 8.0MHz
E1 E2
R904 100
R918 10k
R905 100
TP29
D210 RD3.0E-B
R232 6.8k
D211 1SS119TD
R233 10k
R213 100
IC908 (1/2) CX23028
R907 1k
VDD MODE
A1 DIR1
CTO1
EX1
PO1
B1 PO2
908
DIR2
CLK CTO2
VSS
F/R
4FG
2FG
R219 10k
R223 560k
R225 10k
R220 10k
R221 10k
R222 10k
R224 560k
R226 10k
R251 1k
RV201 1k
R252 1k
IC902
R943 15k
R944 10k
C917 470p
D920 1SS119TD
D921 1SS119TD
Q915 DTC144ES-TP
D912 1SS119TD
R936 10k
R937 10k
R942 10k
C914 10
C912 47 16V
C913 0.01
VCC VSS
R0 R8
R1 R9
R2 R10
907
R3 R5
RESET R6
R7
X R4
EX
C915 30p
X3 8MHz
C916 30p
R938 100
R939 100
R940 10k
R941 47k
Q912 2SC2878B-TPE
Q206 DTC124XS-TP
RV201:CAPSTAN FWD/REW DET

NOTE:
The
safety
as spe


IC900 (2/6)
IC902 (3/6)
IC14 MB84013BPF
PB CTL OUT 6-10 SY, 507-3
REG +12V IN 2-1 DC, 1-5
REG GND 2-2 DC, 1-4
PHASE PG IN 10-1 DRUM, 421-6
SPEED PG GND 10-5 DRUM, 421-3
L:NORMAL FWD 1/2
SPEED DIA 1/2
H:NORMAL 1/2
H:FRAMING ON 1/2
L:NORMAL 1/2
H:INSTANT ON 1/2
H:STOP SERVO ON 1/2
L:CAPSTAN STOP OUT 5-6 SY, 508-7
CAP F/R COM 1/2
H:V2 ON 1/2
L:SERVO LOCK ON 1/2
L:SERVO LOCK ON OUT 9-3 AU, 215-3
L:SERVO LOCK ON OUT 7-8 DM-72, 106-3
SERIAL OUT 5-5 SY, 508-8
SERIAL IN 5-8 SY, 508-5
SERIAL CLOCK OUT 5-4 SY, 508-9
NC 6-6
H:x8 SPEED COM 1/2
L:CAPSTAN REV/FWD OUT 5-2 SY, 508-11
H:REV 1/2
L:REV OUT 8-1 DM-73, 122-4
H:INHIBIT COMMUNICATION 6-2 SY, 507-11
4VD OUT 6-3 SY, 507-10
1/2 VD OUT 6-4 SY, 507-9
R1 0 H: INTERNAL ROCK
R1 1 H: SY RDY
R1 2 H: VIDEO EE
R1 3 H:DRUM STOP
R2 0 L: CAP LOCK
R2 1 H: 1/10 SPEED
R2 2 H: PON OR NOR
R2 3 L: FRAMING OK
R3 0 L: SERVO REC
R3 1 L: DRUM LOCK IN
R3 2 L: X10 SPD
K 0 PB CTL
K 1 TRACON VD
K 2 CSSV
K 3 CAP FWD/REV
EX
X
RESET
IRQ CAP 2FG
TC CAP 4FG
VCC
START
H: STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
H: SEARVO LOCK OUT
H: V2 ON
CF ON
L: FRAMING ON
L: SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
SO
SI
SC/TO
VSS
Q201 DTC124XS-TP
Q412 2SC2785TP-F
Q202 DTC124XS-TP
Q203 DTC124XS-TP
Q204 DTC124XS-TP
Q206 DTC124XS-TP
Q911 2SC2785TP-F
Q114 DTA124XS-TP
Q857 DTC144ES-TP
Q850 DTC144ES-TP
Q852 DTC144ES-TP
Q915 DTC144ES-TP
Q912 2SC2878B-TPE
IC908 (1/2) CX23028
IC902
907
908
X2 8.0MHz
X3 8MHz
TP2
TP28
TP29
E1 E2 E3
REG +12V
+5V (A)
+5V (B)
F/R
4FG
2FG

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

SV-112C (2/2)

1-629-566-42
VO-9800P

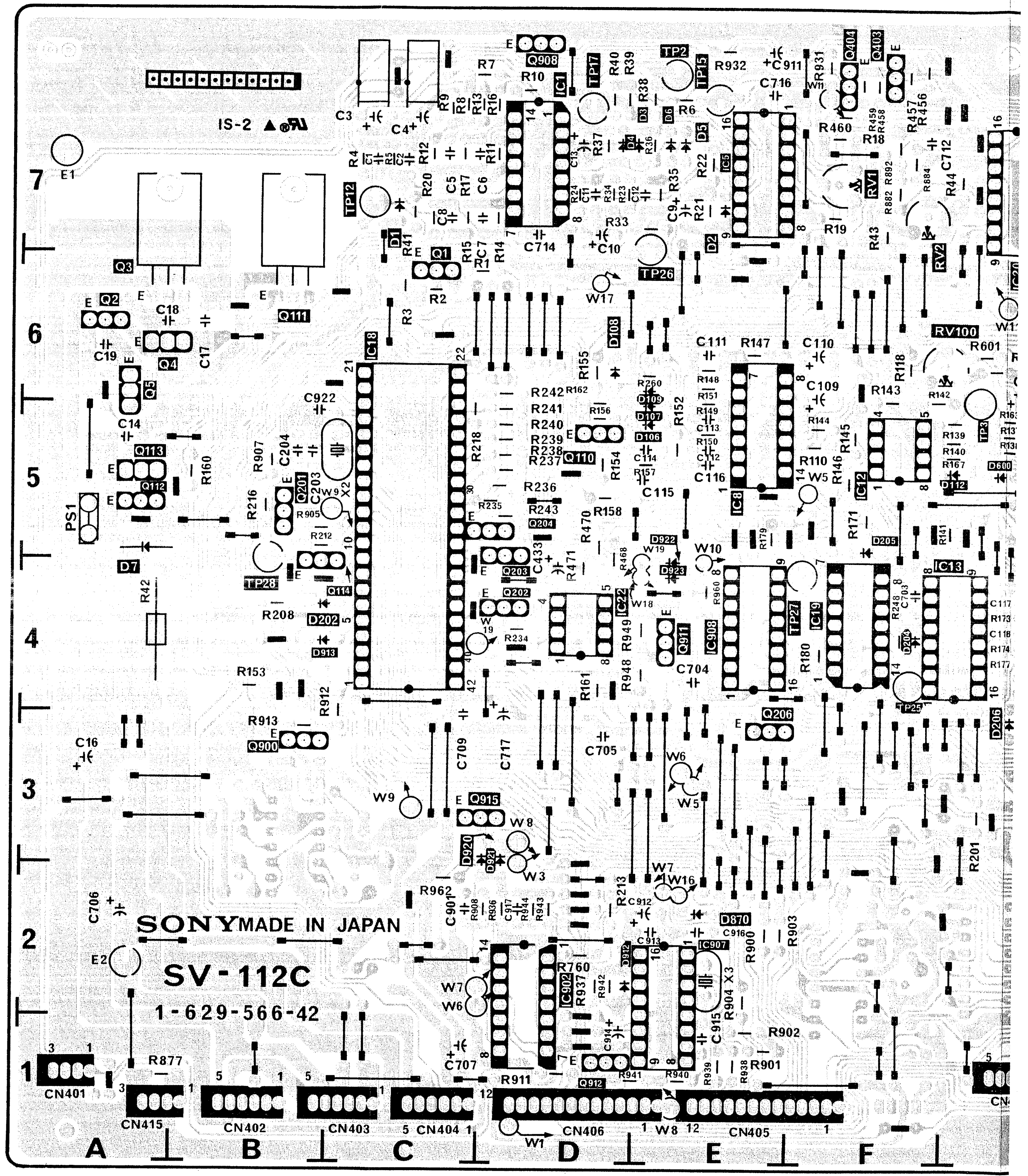
SV-112C: DRUM/CAPSTAN SERVO CONTROL

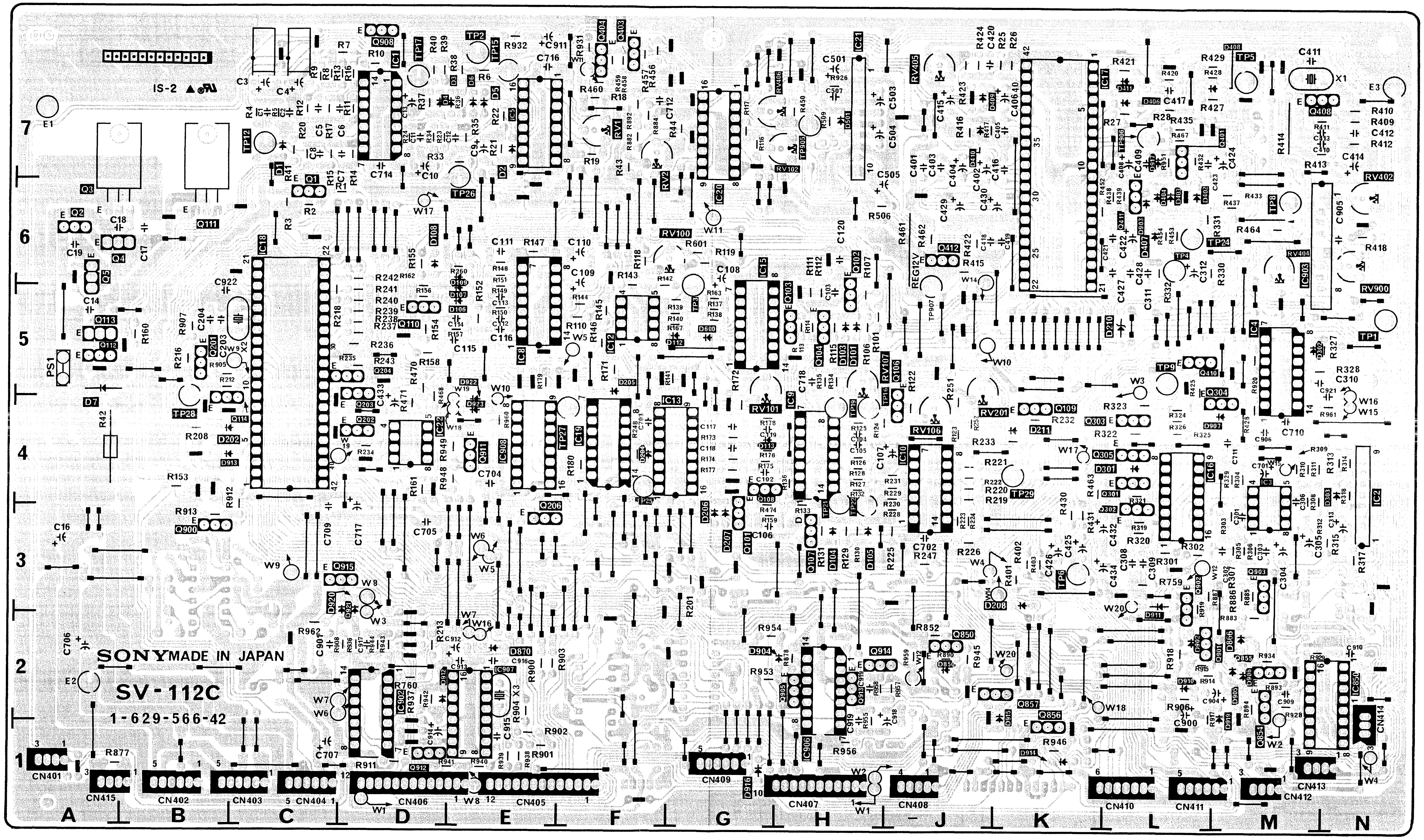
SV-112C (1-629-566-42) C

CN401	A-1	D907	M-4	Q203	D-4
CN402	B-1	D910	L-2	Q204	D-5
CN403	C-1	D911	L-3	Q206	F-3
CN404	C-1	D912	D-2	Q301	L-4
CN405	E-1	D913	B-4	Q302	L-4
CN406	D-1	D914	K-1	Q303	L-4
CN407	H-1	D915	K-2	Q304	L-5
CN408	J-1	D916	G-1	Q305	L-4
CN409	G-1	D917	L-7	Q401	L-7
CN410	L-1	D918	H-2	Q403	F-7
CN411	L-1	D919	M-2	Q404	F-7
CN412	M-1	D920	D-2	Q408	M-7
CN413	M-1	D921	C-2	Q410	L-5
CN414	N-2	D922	E-5	Q411	L-6
CN415	A-1	D923	E-4	Q412	J-6
				Q850	J-2
D1	C-7	IC1	D-7	Q854	M-1
D2	E-7	IC2	N-4	Q855	M-2
D3	D-7	IC3	M-4	Q856	K-2
D4	D-7	IC4	M-5	Q857	K-2
D5	E-7	IC5	E-7	Q900	B-3
D6	E-7	IC8	F-5	Q901	M-2
D7	A-4	IC9	H-4	Q902	L-3
D101	H-5	IC10	J-3	Q903	M-3
D103	H-5	IC12	F-5	Q905	H-2
D104	H-3	IC13	G-4	Q908	D-7
D105	H-3	IC15	G-6	Q911	E-4
D106	E-5	IC16	L-4	Q912	D-1
D107	E-5	IC17	K-7	Q913	H-2
D108	D-6	IC18	C-4	Q914	H-2
D109	E-6	IC19	F-4	Q915	D-3
D112	G-5	IC20	G-6		
D113	G-4	IC21	H-7	RV1	F-7
D202	B-4	IC22	D-4	RV2	G-7
D204	F-4	IC850	M-1	RV100	G-6
D205	F-5	IC902	D-1	RV101	G-4
D206	G-3	IC903	M-6	RV102	H-7
D207	G-3	IC906	H-2	RV106	J-4
D208	K-3	IC907	E-2	RV107	H-5
D210	L-5	IC908	E-4	RV201	J-5
D211	K-4			RV402	N-7
D301	L-4	PS1	A-5	RV404	M-6
D302	M-5			RV405	J-7
D303	N-4	Q1	C-7	RV406	G-7
D402	L-6	Q2	A-6	RV900	N-6
D403	L-6	Q3	A-6		
D404	L-6	Q4	A-6	X1	N-7
D406	L-7	Q5	A-6	X2	C-5
D407	L-6	Q101	G-3	X3	E-2
D408	L-7	Q102	H-6		
D409	J-7	Q103	H-5		
D410	J-7	Q104	H-5		
D411	L-7	Q106	J-5		
D501	H-7	Q107	H-3		
D600	G-5	Q108	G-4		
D850	J-2	Q109	K-4		
D866	M-2	Q110	D-5		
D870	E-2	Q111	B-6		
D902	L-2	Q112	A-5		
D903	L-6	Q113	A-5		
D904	G-2	Q114	C-4		
D905	M-2	Q201	B-5		
D906	M-2	Q202	D-4		

SV-112C (1-629-566-42) S

E1	A-7
E2	A-2
E3	N-7
TP1	N-5
TP2	E-7
TP3	G-5
TP4	L-6
TP5	M-7
TP6	K-3
TP8	M-6
TP9	L-5
TP12	C-7
TP15	E-7
TP16	H-5
TP17	D-7
TP19	H-4
TP21	H-4
TP22	H-4
TP24	L-6
TP25	F-4
TP26	E-6
TP27	F-4
TP28	B-4
TP29	K-4
TP905	H-7
TP906	L-7
TP907	J-5

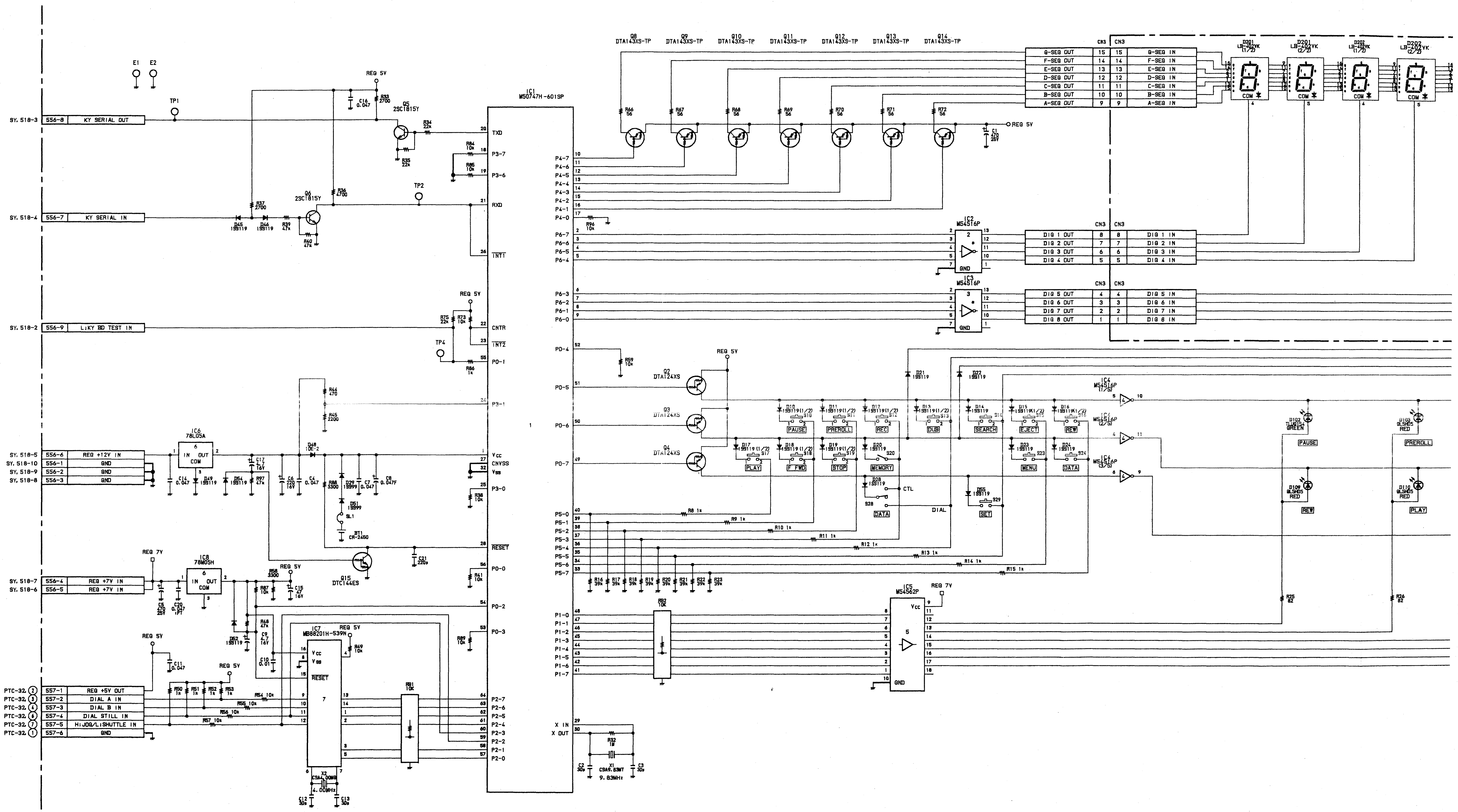


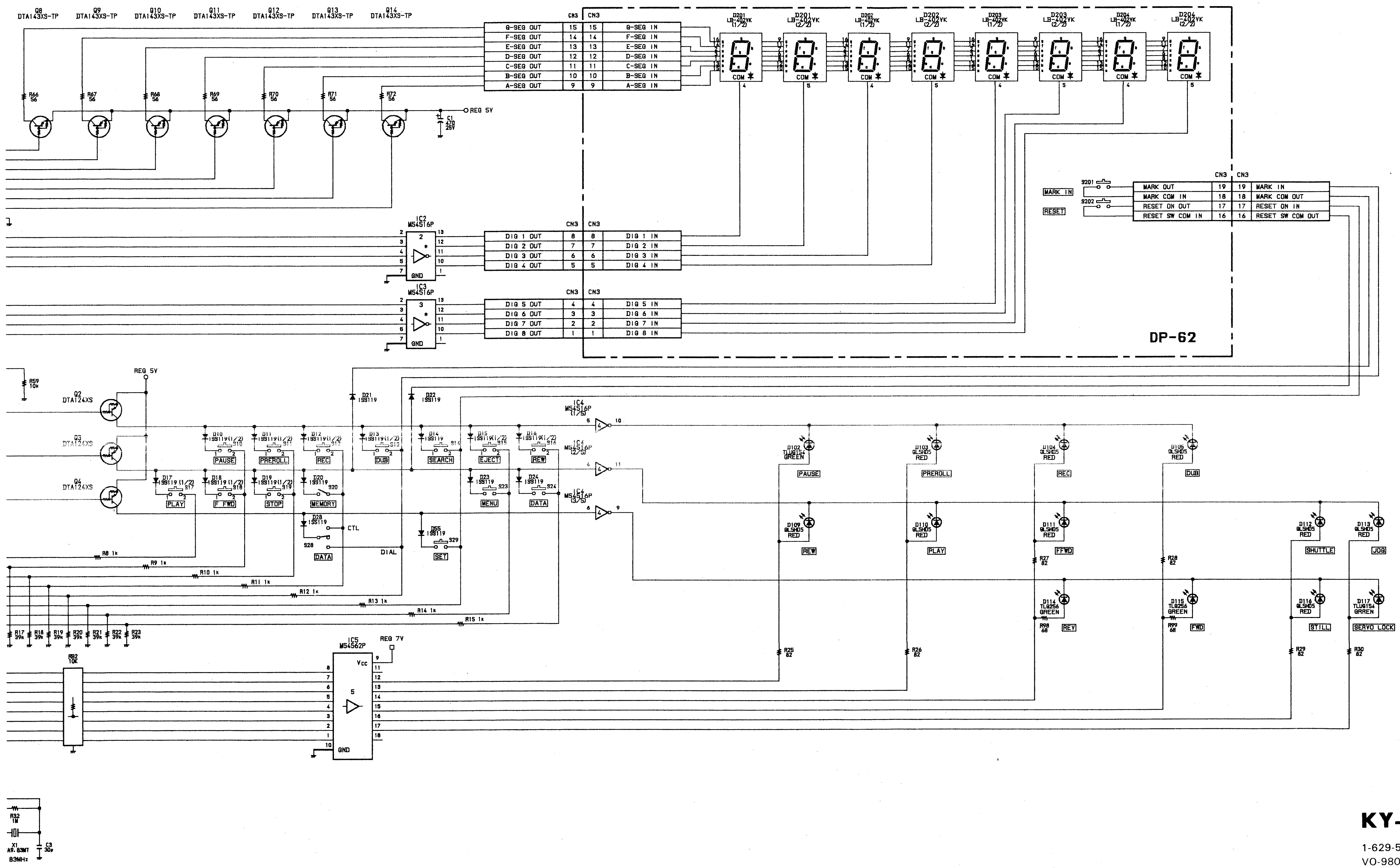

SONY MADE IN JAPAN
SV-112C
1-629-566-42
IS-2
A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
7
CN401
CN415
CN402
CN403
CN404
CN406
CN405
CN409
CN407
CN408
CN410
CN411
CN412
CN413
CN414
PS1
E1
E2
E3
X1
X2
X3
TP1
TP2
TP5
TP12
TP15
TP17
TP26
TP28
TP29
IC1
IC2
IC4
IC8
IC9
IC10
IC12
IC13
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
RV1
RV2
RV100
RV101
RV102
RV106
RV107
RV201
RV402
RV405
RV900
Q1
Q2
Q3
Q4
Q5
Q110
Q111
Q113
Q114
Q408
Q409
Q412
Q900
Q908
Q915
D1
D2
D3
D5
D7

SV-112C

—SOLDERING SIDE—
1-629-566-42
VO-9800P

KY-159A: FUNCTION KEY BOARD


IC1 M50747H-601SP
IC2 M54516P
IC3 M54516P
IC4 M54516P
IC5 M54562P
IC6 78L05A
IC7 MB88201H-539N
IC8 78M05H
Q5 2SC1815Y
Q6 2SC1815Y
Q15 DTC144ES
Q2 DTA124XS
Q3 DTA124XS
Q4 DTA124XS
Q8 DTA143XS-TP
Q9 DTA143XS-TP
Q10 DTA143XS-TP
Q11 DTA143XS-TP
Q12 DTA143XS-TP
Q13 DTA143XS-TP
Q14 DTA143XS-TP
D201 LB-402VK
D202 LB-402VK
REG 5V
REG 7V
TP1
TP2
TP4
E1
E2
SY. 518-3 S56-8 KY SERIAL OUT
SY. 518-4 S56-7 KY SERIAL IN
SY. 518-2 S56-9 L:KY BD TEST IN
SY. 518-5 S56-6 REG +12V IN
SY. 518-10 S56-1 GND
SY. 518-9 S56-2 GND
SY. 518-8 S56-3 GND
SY. 518-7 S56-4 REG +7V IN
SY. 518-6 S56-5 REG +7V IN
PTC-32 ② S57-1 REG +5V OUT
PTC-32 ③ S57-2 DIAL A IN
PTC-32 ④ S57-3 DIAL B IN
PTC-32 ⑥ S57-4 DIAL STILL IN
PTC-32 ⑦ S57-5 H:JOG/L:SHUTTLE IN
PTC-32 ① S57-6 GND
TXD
RXD
INT1
CNTR
INT2
Vcc
CNVSS
Vss
RESET
X IN
X OUT
X1 CSA9.83MT 9.83MHz
X2 CSA4.00MG 4.00MHz
BT1 CR-2450
G-SEG OUT
F-SEG OUT
E-SEG OUT
D-SEG OUT
C-SEG OUT
B-SEG OUT
A-SEG OUT
DIG 1 OUT
DIG 2 OUT
DIG 3 OUT
DIG 4 OUT
DIG 5 OUT
DIG 6 OUT
DIG 7 OUT
DIG 8 OUT
CN3
PAUSE
PREROLL
REC
DUB
SEARCH
EJECT
REW
PLAY
F FWD
STOP
MEMORY
MENU
DATA
SET
CTL
DIAL
D102 GREEN
D103 RED
D109 RED
D110 RED


Q8 DTA143XS-TP
Q9 DTA143XS-TP
Q10 DTA143XS-TP
Q11 DTA143XS-TP
Q12 DTA143XS-TP
Q13 DTA143XS-TP
Q14 DTA143XS-TP
R66 56
R67 56
R68 56
R69 56
R70 56
R71 56
R72 56
C1 470 25V
REG 5V
CN3
G-SEG OUT
F-SEG OUT
E-SEG OUT
D-SEG OUT
C-SEG OUT
B-SEG OUT
A-SEG OUT
G-SEG IN
F-SEG IN
E-SEG IN
D-SEG IN
C-SEG IN
B-SEG IN
A-SEG IN
D201 LB-402VK (1/2)
D201 LB-402VK (2/2)
D202 LB-402VK (1/2)
D202 LB-402VK (2/2)
D203 LB-402VK (1/2)
D203 LB-402VK (2/2)
D204 LB-402VK (1/2)
D204 LB-402VK (2/2)
COM
IC2 M54516P
IC3 M54516P
GND
DIG 1 OUT
DIG 2 OUT
DIG 3 OUT
DIG 4 OUT
DIG 5 OUT
DIG 6 OUT
DIG 7 OUT
DIG 8 OUT
DIG 1 IN
DIG 2 IN
DIG 3 IN
DIG 4 IN
DIG 5 IN
DIG 6 IN
DIG 7 IN
DIG 8 IN
S201
S202
MARK IN
RESET
MARK OUT
MARK COM IN
RESET ON OUT
RESET SW COM IN
MARK IN
MARK COM OUT
RESET ON IN
RESET SW COM OUT
DP-62
R59 10k
REG 5V
Q2 DTA124XS
Q3 DTA124XS
Q4 DTA124XS
D21 1SS119
D22 1SS119
IC4 M54516P (1/3)
IC4 M54516P (2/3)
IC4 M54516P (3/3)
D10 1SS119(1/2)
D11 1SS119(1/2)
D12 1SS119(1/2)
D13 1SS119(1/2)
D14 1SS119
D15 1SS119(1/2)
D16 1SS119(1/2)
S10 S11 S12 S13 S14 S15 S16
PAUSE
PREROLL
REC
DUB
SEARCH
EJECT
REW
D17 1SS119 (1/2)
D18 1SS119 (1/2)
D19 1SS119(1/2)
D20 1SS119
D23 1SS119
D24 1SS119
S17 S18 S19 S20 S23 S24
PLAY
F FWD
STOP
MEMORY
MENU
DATA
D28 1SS119
CTL
S28
DATA
DIAL
D55 1SS119
S29
SET
R8 1k
R9 1k
R10 1k
R11 1k
R12 1k
R13 1k
R14 1k
R15 1k
R17 39k
R18 39k
R19 39k
R20 39k
R21 39k
R22 39k
R23 39k
RB2 10K
IC5 M54562P
REG 7V
Vcc
GND
D102 TLUG154 GREEN
D103 GL5HD5 RED
D104 GL5HD5 RED
D105 GL5HD5 RED
PAUSE
PREROLL
REC
DUB
D109 GL5HD5 RED
D110 GL5HD5 RED
D111 GL5HD5 RED
D112 GL5HD5 RED
D113 GL5HD5 RED
REW
PLAY
FFWD
SHUTTLE
JOG
R27 82
R28 82
D114 TLG256 GREEN
D115 TLG256 GREEN
D116 GL5HD5 RED
D117 TLUG154 GRREN
R98 68
R99 68
REV
FWD
STILL
SERVO LOCK
R25 82
R26 82
R29 82
R30 82
R32 1M
X1 A9.83MT 83MHz
C3 30p

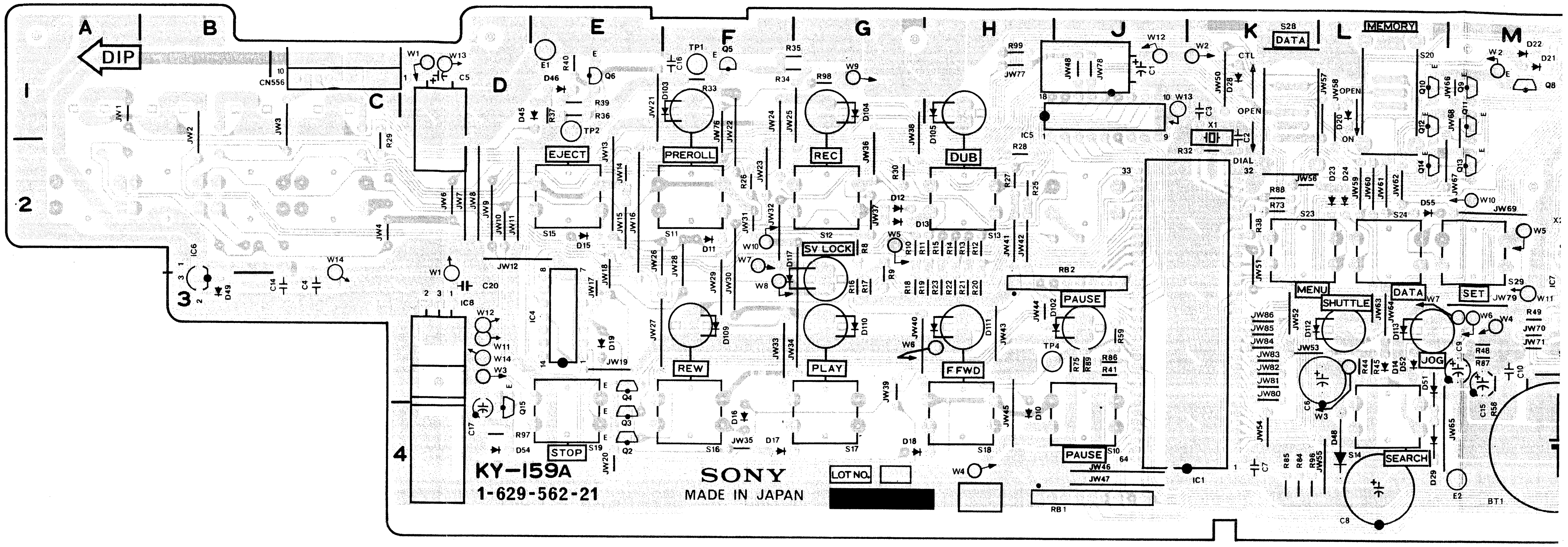
KY-159A

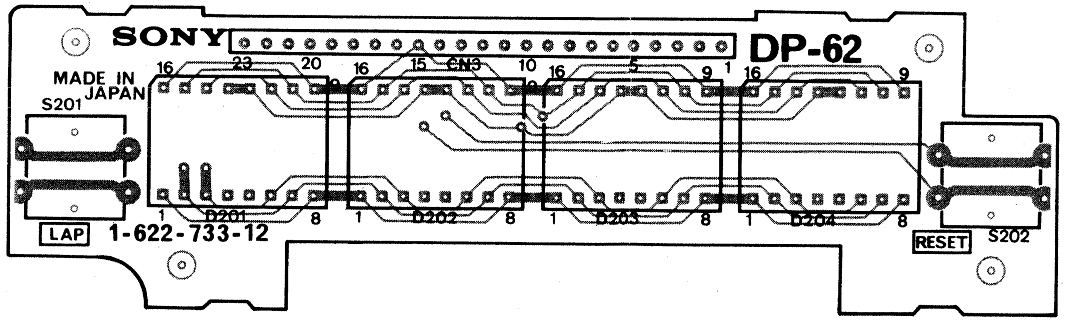
1-629-562-21
VO-9800
VO-9800P

KY-159A: FUNCTION KEY BOARD
DP-62: DISPLAY

KY-159A (1-629-562-21) C

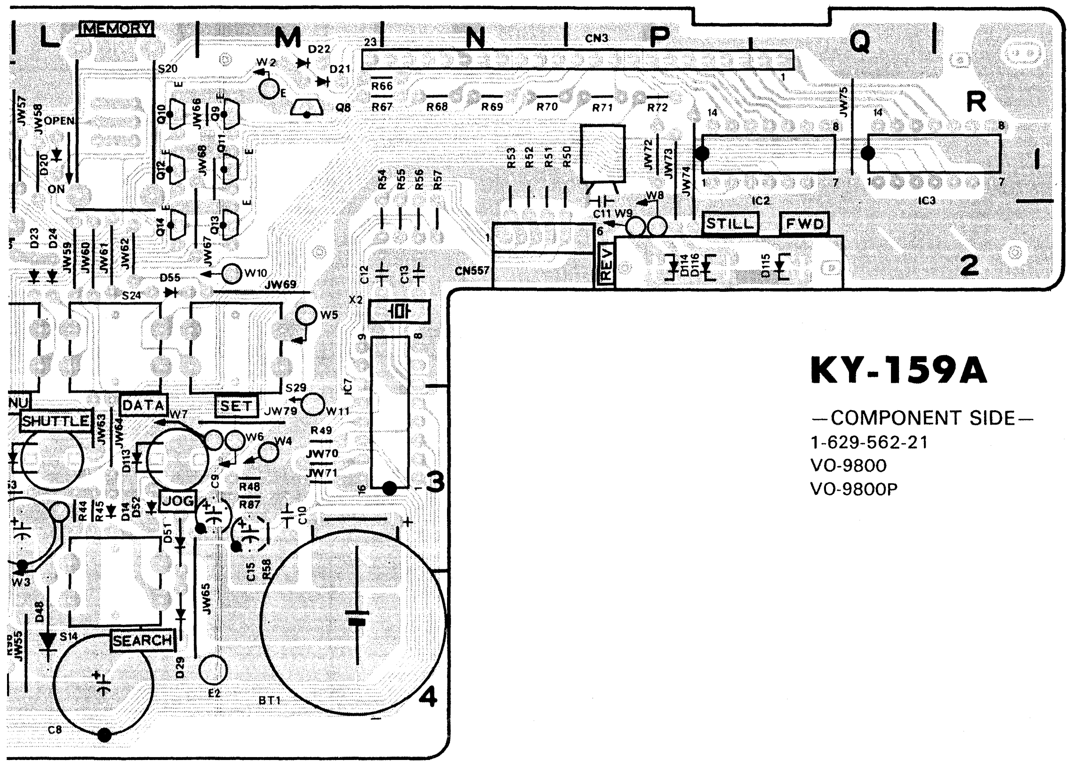
CN3	P-1	Q2	E-4
CN556	C-1	Q3	E-4
CN557	N-2	Q4	E-3
		Q5	F-1
D10	H-4	Q6	E-1
D11	F-2	Q8	M-1
D12	G-2	Q9	M-1
D13	G-2	Q10	L-1
D14	L-3	Q11	M-1
D15	E-2	Q12	L-1
D16	F-4	Q13	M-2
D17	F-4	Q14	L-2
D18	G-4	Q15	D-4
D19	E-3		
D20	L-1	RB1	J-4
D21	M-1	RB2	J-2
D22	M-1		
D23	L-2	S10	J-4
D24	L-2	S11	F-2
D28	K-1	S12	G-2
D29	L-4	S13	H-2
D45	E-1	S14	L-4
D46	E-1	S15	E-2
D48	L-4	S16	F-4
D49	B-3	S17	G-4
D51	L-3	S18	H-4
D52	L-3	S19	E-4
D54	D-4	S20	L-1
D55	L-2	S23	K-2
D102	J-3	S24	L-2
D103	F-1	S28	K-1
D104	G-1	S29	M-2
D105	H-1	S201	S-1
D109	F-3	S202	T-1
D110	G-3		
D111	H-3	TP1	F-1
D112	L-3	TP2	E-1
D113	L-3	TP4	H-3
D114	P-2		
D115	Q-2	X1	K-1
D116	P-2	X2	M-2
D117	G-3		
D201	S-1		
D202	S-1		
D203	T-1		
D204	T-1		
E1	E-1		
E2	M-4		
IC1	K-4		
IC2	Q-1		
IC3	Q-1		
IC4	E-3		
IC5	H-1		
IC6	B-3		
IC7	M-3		
IC8	D-3		


A
B
C
D
E
F
G
H
J
K
L
M
1
2
3
4
DIP
EJECT
PREROLL
REC
DUB
SV LOCK
PAUSE
REW
PLAY
FFWD
STOP
DATA
MEMORY
MENU
SHUTTLE
SET
JOG
SEARCH
KY-159A
1-629-562-21
SONY
MADE IN JAPAN
LOT NO.


SONY
DP-62
MADE IN JAPAN
S201
LAP
1-622-733-12
CN3
D201
D202
D203
D204
RESET
S202

DP-62

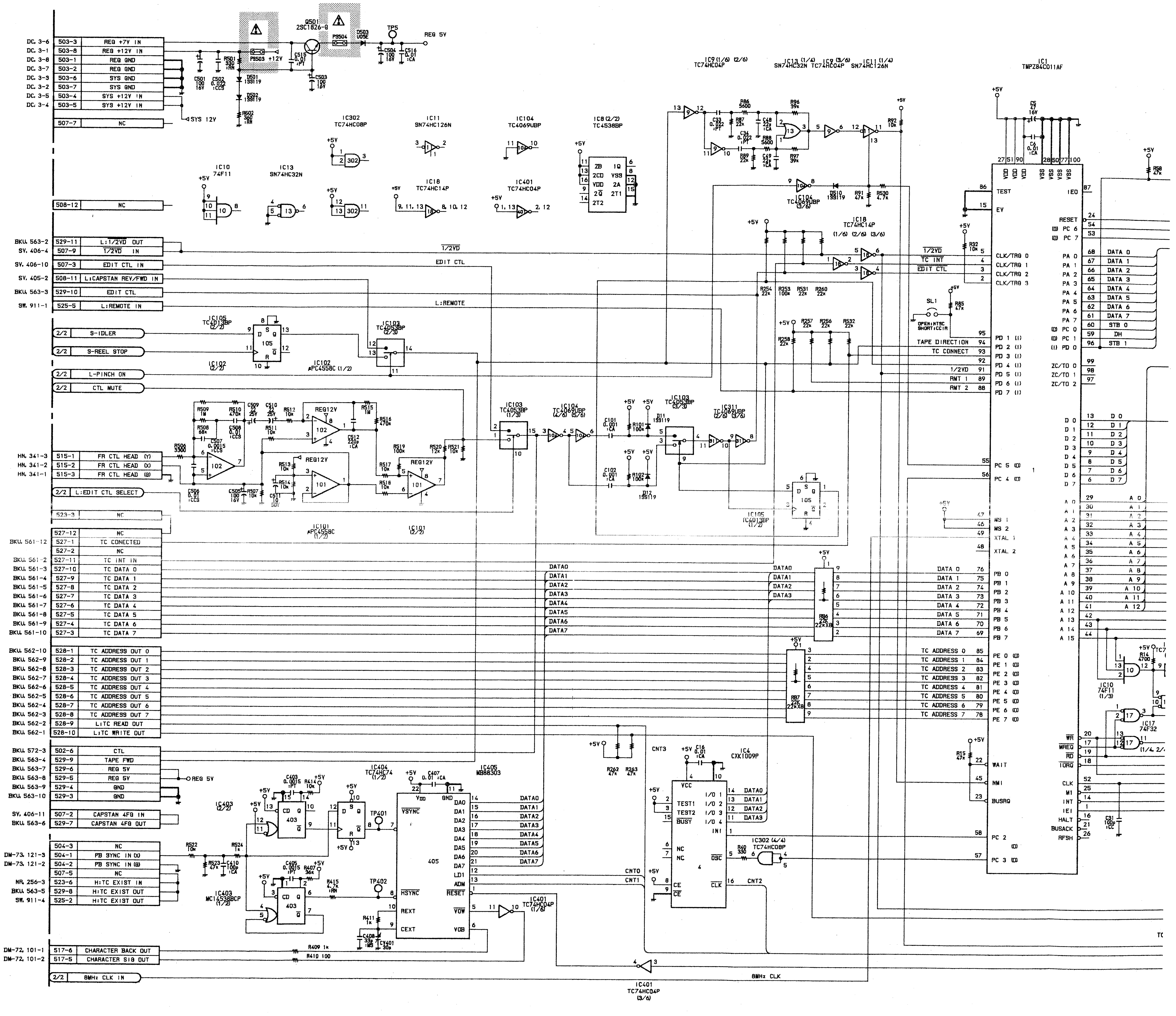
—COMPONENT SIDE—
1-622-733-12
VO-9850
VO-9850P
VO-9800
VO-9800P


L
MEMORY
M
N
CN3
P
Q
R
IC2
IC3
STILL
FWD
REV
CN557
2
3
4
X2
IC7
BT1
C8
DATA
SET
SHUTTLE
JOG
SEARCH
OPEN
ON

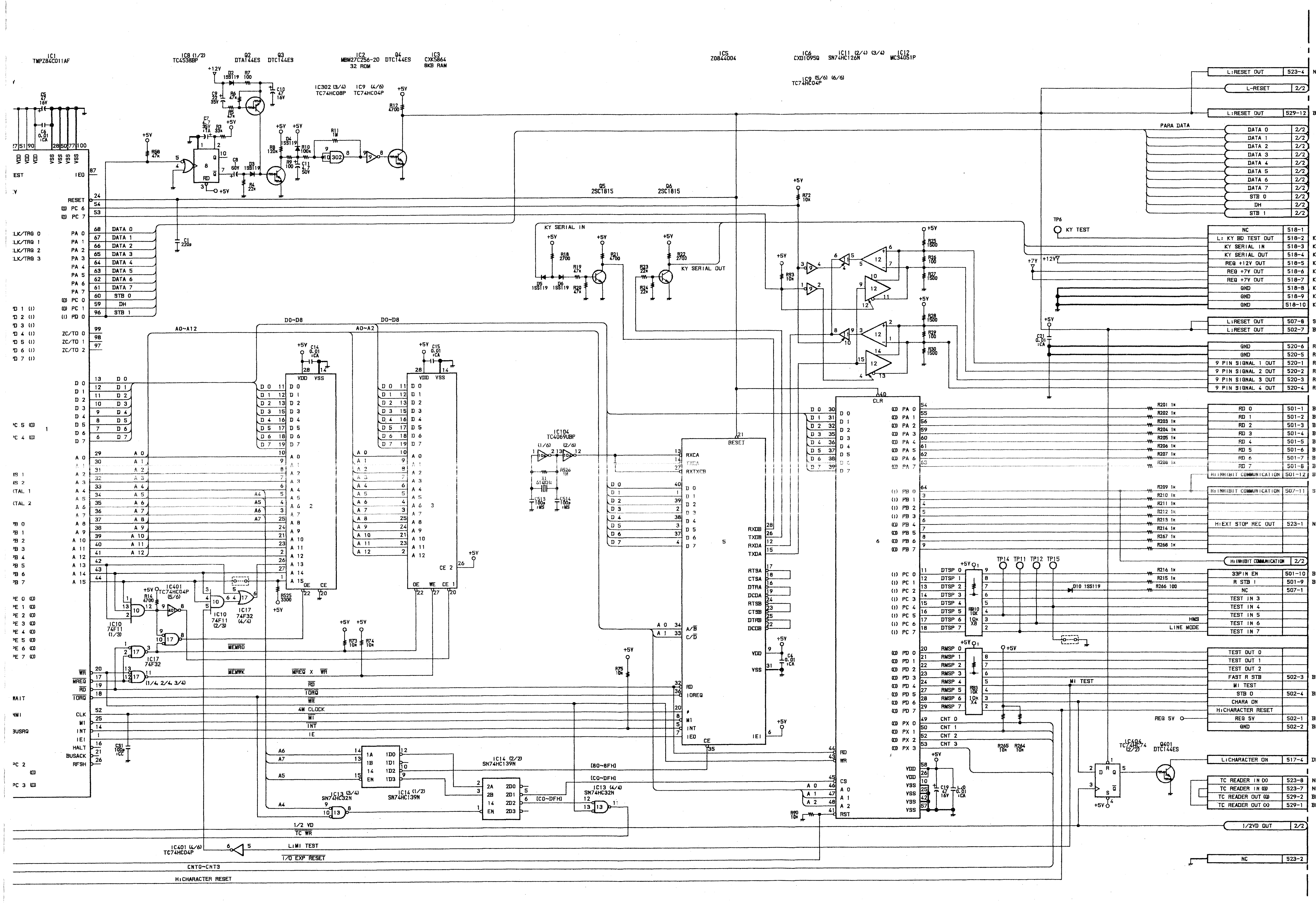
KY-159A

—COMPONENT SIDE—
1-629-562-21
VO-9800
VO-9800P

SY-141C (1/2): SYSTEM CONTROL


REG 5V
Q501 2SC1826-Q
IC1 TMPZ84C011AF
IC4 CXK1009P
IC404 TC74HC74
IC405 MB88303
IC403 MC14538BCP
IC101 µPC4558C
IC102 µPC4558C
IC103 TC4053BP
IC104 TC4069UBP
IC105 TC4013BP
IC401 TC74HC04P
IC302 TC74HC08P
IC8 TC4538BP
IC9 TC74HC04P
IC10 74F11
IC11 SN74HC126N
IC13 SN74HC32N
IC17 74F32
IC18 TC74HC14P
IC311 TC4069UBP
8MHz CLK
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
1/2VD
EDIT CTL
L:REMOTE
TAPE DIRECTION
TC CONNECT
TC INT
SYS 12V
S-IDLER
S-REEL STOP
L-PINCH ON
CTL MUTE
L:EDIT CTL SELECT
FR CTL HEAD
CHARACTER BACK OUT
CHARACTER SIG OUT
PB SYNC IN
H:TC EXIST IN
H:TC EXIST OUT
CAPSTAN 4FG IN
CAPSTAN 4FG OUT
TC ADDRESS OUT 0
TC ADDRESS OUT 1
TC ADDRESS OUT 2
TC ADDRESS OUT 3
TC ADDRESS OUT 4
TC ADDRESS OUT 5
TC ADDRESS OUT 6
TC ADDRESS OUT 7
L:TC READ OUT
L:TC WRITE OUT
TC DATA 0
TC DATA 1
TC DATA 2
TC DATA 3
TC DATA 4
TC DATA 5
TC DATA 6
TC DATA 7
TC CONECTED
TC INT IN
CTL
TAPE FWD
REG 5V
GND

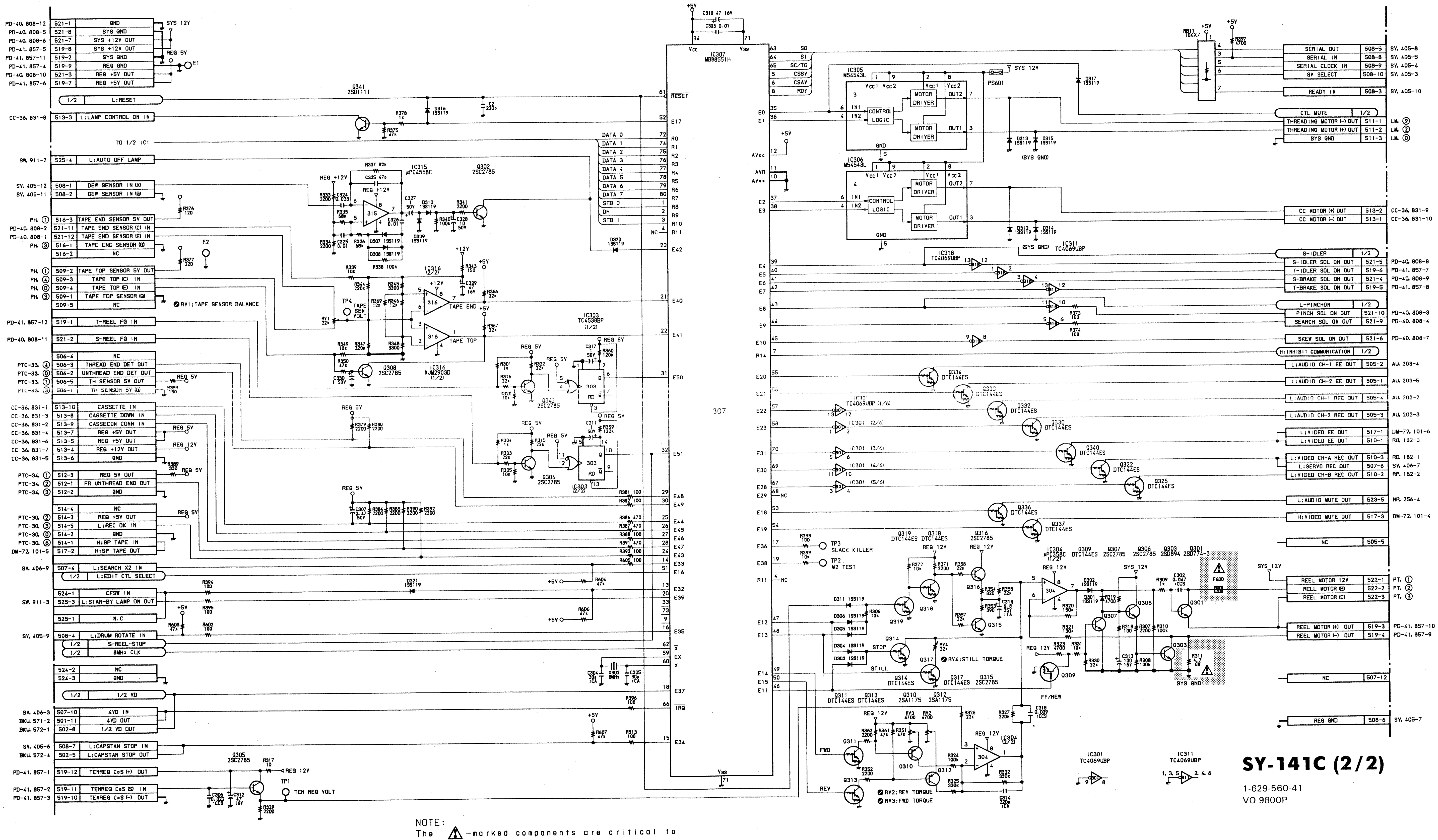
NOTE:
The ⚠ -marked components are critical to safety. Replace only with same components as specified.


IC1 TMPZ84C011AF
IC8 (1/2) TC4538BP
Q2 DTA144ES
Q3 DTC144ES
IC2 MBM27C256-20 32 ROM
Q4 DTC144ES
IC3 CXK5864 8KB RAM
IC302 (3/4) TC74HC08P
IC9 (4/6) TC74HC04P
IC5 Z0844004
IC6 CXD1095Q
IC11 (2/4) (3/4) SN74HC126N
IC12 MC34051P
IC9 (5/6) (6/6) TC74HC04P
Q5 2SC1815
Q6 2SC1815
KY SERIAL IN
KY SERIAL OUT
TP6 KY TEST
IC104 TC4069UBP
IC401 TC74HC04P
IC10 74F11
IC17 74F32
IC13 SN74HC32N
IC14 SN74HC139N
IC404 TC74HC74
Q401 DTC144ES
IC401 (4/6) TC74HC04P
A0~A12
D0~D8
A0~A2
MEMRD
MEMWR
MREQ X WR
4M CLOCK
1/2 VD
TC WR
L:MI TEST
I/O EXP RESET
CNT0~CNT3
H:CHARACTER RESET
PARA DATA
L:RESET OUT 523-4 NR. 256-5
L-RESET 2/2
L:RESET OUT 529-12 BKU. 563-1
DATA 0 2/2
DATA 1 2/2
DATA 2 2/2
DATA 3 2/2
DATA 4 2/2
DATA 5 2/2
DATA 6 2/2
DATA 7 2/2
STB 0 2/2
DH 2/2
STB 1 2/2
NC 518-1
L: KY BD TEST OUT 518-2 KY. 556-9
KY SERIAL IN 518-3 KY. 556-8
KY SERIAL OUT 518-4 KY. 556-7
REG +12V OUT 518-5 KY. 556-6
REG +7V OUT 518-6 KY. 556-5
REG +7V OUT 518-7 KY. 556-4
GND 518-8 KY. 556-3
GND 518-9 KY. 556-2
GND 518-10 KY. 556-1
L:RESET OUT 507-8 SV. 406-5
L:RESET OUT 502-7 BKU. 572-2
GND 520-6 RM. 913-1
GND 520-5 RM. 913-2
9 PIN SIGNAL 1 OUT 520-1 RM. 913-6
9 PIN SIGNAL 2 OUT 520-2 RM. 913-5
9 PIN SIGNAL 3 OUT 520-3 RM. 913-4
9 PIN SIGNAL 4 OUT 520-4 RM. 913-3
RD 0 501-1 BKU. 571-12
RD 1 501-2 BKU. 571-11
RD 2 501-3 BKU. 571-10
RD 3 501-4 BKU. 571-9
RD 4 501-5 BKU. 571-8
RD 5 501-6 BKU. 571-7
RD 6 501-7 BKU. 571-6
RD 7 501-8 BKU. 571-5
H:INHIBIT COMMUNICATION 501-12 BKU. 571-1
H:INHIBIT COMMUNICATION 507-11 SV. 406-2
H:EXT STOP REC OUT 523-1 NR. 256-8
H:INHIBIT COMMUNICATION 2/2
33PIN EN 501-10 BKU. 571-3
R STB 1 501-9 BKU. 571-4
NC 507-1
TEST IN 3
TEST IN 4
TEST IN 5
TEST IN 6
TEST IN 7
HMS
LINE MODE
TEST OUT 0
TEST OUT 1
TEST OUT 2
FAST R STB 502-3 BKU. 572-6
MI TEST
STB 0 502-4 BKU. 572-5
CHARA ON
H:CHARACTER RESET
REG 5V 502-1 BKU. 572-8
GND 502-2 BKU. 572-7
L:CHARACTER ON 517-4 DM-72 101-3
TC READER IN (X) 523-8 NR. 256-1
TC READER IN (G) 523-7 NR. 256-2
TC READER OUT (G) 529-2 BKU. 563-11
TC READER OUT (X) 529-1 BKU. 563-12
1/2VD OUT 2/2
NC 523-2
TP14 TP11 TP12 TP15
D10 1SS119

SY-141C (1/2)

1-629-560-41
VO-9800P

SY-141C(2/2): SYSTEM CONTROL, REEL SERVO


IC307 MB88551H
IC305 M54543L
IC306 M54543L
IC315 μPC4558C
IC316 NJM2903D
IC303 TC4538BP
IC301 TC4069UBP
IC311 TC4069UBP
IC318 TC4069UBP
IC304 μPC358C
GND
SYS GND
SYS +12V OUT
SYS +5V OUT
REG GND
REG +5V OUT
L:RESET
L:LAMP CONTROL ON IN
L:AUTO OFF LAMP
DEW SENSOR IN
TAPE END SENSOR 5V OUT
TAPE END SENSOR IN
TAPE TOP SENSOR 5V OUT
TAPE TOP IN
T-REEL FG IN
S-REEL FG IN
THREAD END DET OUT
UNTHREAD END DET OUT
TH SENSOR 5V OUT
CASSETTE IN
CASSETTE DOWN IN
CASSECON CONN IN
REG +12V OUT
FR UNTHREAD END OUT
L:REC OK IN
H:SP TAPE IN
H:SP TAPE OUT
L:SEARCH X2 IN
L:EDIT CTL SELECT
CFSW IN
L:STAN-BY LAMP ON OUT
L:DRUM ROTATE IN
S-REEL-STOP
8MHz CLK
1/2 VD
4VD IN
4VD OUT
1/2 VD OUT
L:CAPSTAN STOP IN
L:CAPSTAN STOP OUT
TENREG CoS (+) OUT
TENREG CoS (S) IN
TENREG CoS (-) OUT
TEN REG VOLT
RV1:TAPE SENSOR BALANCE
SERIAL OUT
SERIAL IN
SERIAL CLOCK IN
SY SELECT
READY IN
CTL MUTE
THREADING MOTOR (-) OUT
THREADING MOTOR (+) OUT
CC MOTOR (+) OUT
CC MOTOR (-) OUT
S-IDLER
S-IDLER SOL ON OUT
T-IDLER SOL ON OUT
S-BRAKE SOL ON OUT
T-BRAKE SOL ON OUT
L-PINCHON
PINCH SOL ON OUT
SEARCH SOL ON OUT
SKEW SOL ON OUT
H:INHIBIT COMMUNICATION
L:AUDIO CH-1 EE OUT
L:AUDIO CH-2 EE OUT
L:AUDIO CH-1 REC OUT
L:AUDIO CH-2 REC OUT
L:VIDEO EE OUT
L:VIDEO CH-A REC OUT
L:SERVO REC OUT
L:VIDEO CH-B REC OUT
L:AUDIO MUTE OUT
H:VIDEO MUTE OUT
REEL MOTOR 12V
REEL MOTOR (S)
REEL MOTOR (C)
REEL MOTOR (+) OUT
REEL MOTOR (-) OUT
REG GND
TP3 SLACK KILLER
TP2 M2 TEST
RV4:STILL TORQUE
RV2:REV TORQUE
RV3:FWD TORQUE
STOP
STILL
FWD
REV
FF/REW
F600
PS601

SY-141C (2/2)

1-629-560-41
VO-9800P

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

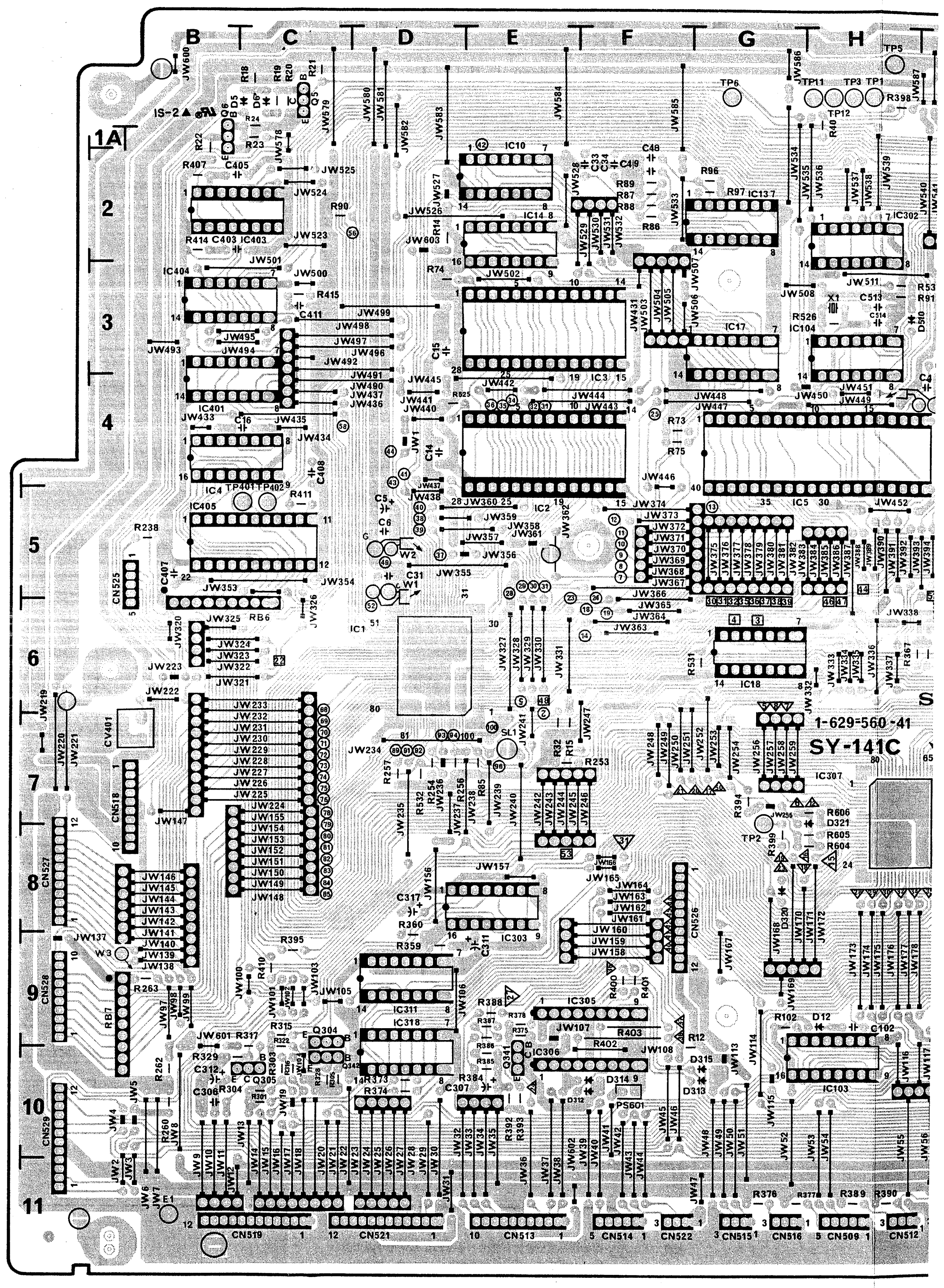
SY-141C: SYSTEM CONTROL, REEL SERVO

SY-141C (1-629-560-41) C

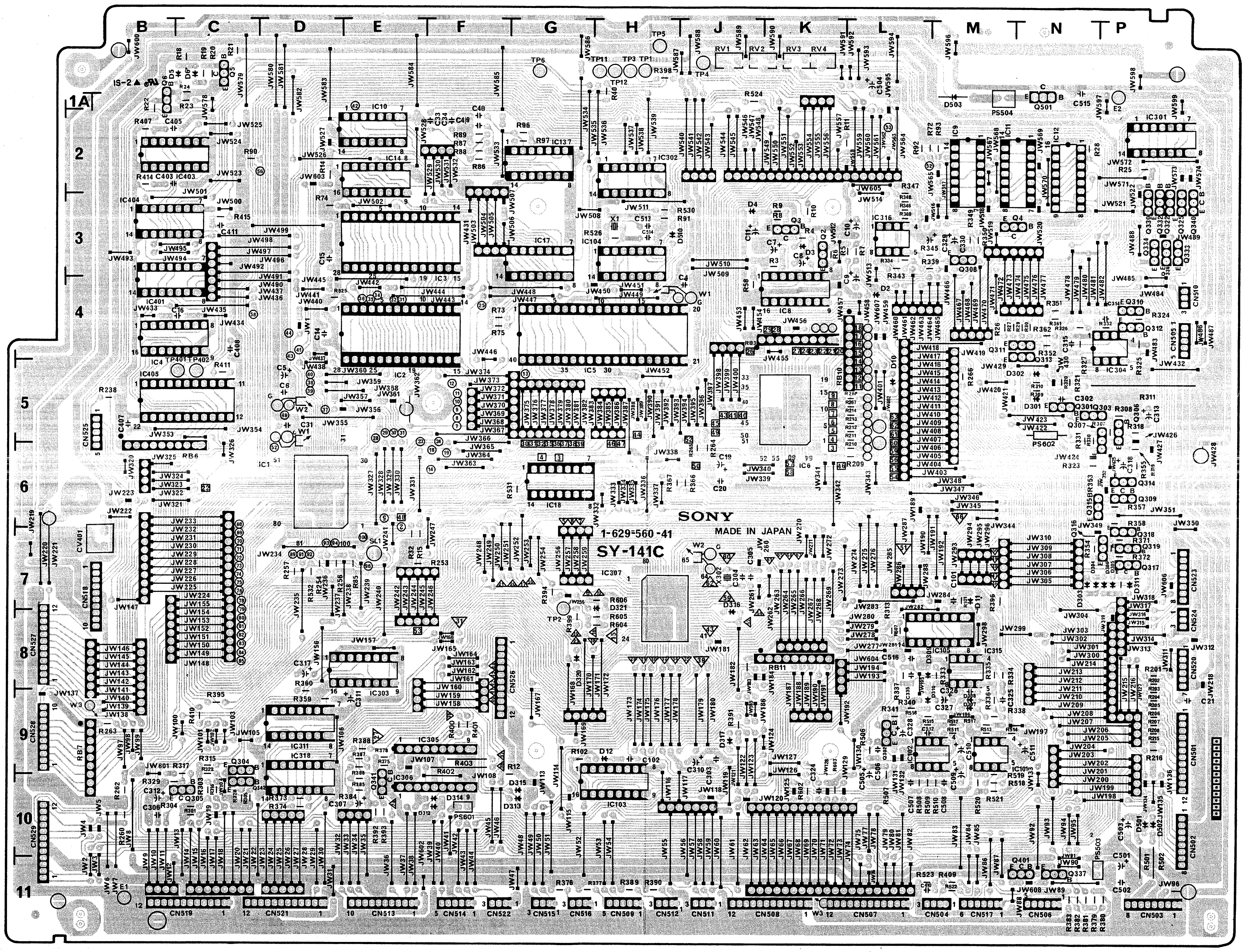
CNI2	E-4	D503	M-1	Q316	N-6
		D510	H-3	Q317	P-7
CN501	P-9			Q318	P-7
CN502	P-10	E1	B-11	Q319	P-7
CN503	P-11	E2	P-1	Q322	P-3
CN504	M-11			Q325	P-3
CN505	P-4	IC3	F-3	Q330	P-3
CN506	N-11	IC4	B-4	Q332	P-3
CN507	L-11	IC5	G-5	Q333	P-3
CN508	J-11	IC8	K-4	Q334	P-3
CN509	H-11	IC9	M-2	Q336	P-3
CN510	P-4	IC10	E-2	Q337	N-11
CN511	J-11	IC11	M-2	Q340	P-3
CN512	H-11	IC12	N-2	Q341	E-10
CN513	E-11	IC13	G-2	Q342	C-10
CN514	F-11	IC14	E-3	Q401	N-11
CN515	G-11	IC17	G-3	Q501	N-1
CN516	G-11	IC18	G-6		
CN517	M-11	IC101	N-10	RB3	K-4
CN518	A-7	IC102	L-9	RB6	B-6
CN519	C-11	IC103	H-10	RB7	A-9
CN520	P-8	IC104	H-3	RB10	K-4
CN521	D-11	IC105	M-8	RB11	K-8
CN522	F-11	IC301	P-2		
CN523	P-7	IC302	H-2	RV1	J-1
CN524	P-8	IC303	E-8	RV2	J-1
CN525	A-5	IC304	P-5	RV3	K-1
CN526	G-8	IC305	E-9	RV4	K-1
CN527	A-8	IC306	E-10		
CN528	A-9	IC311	D-9	TP1	H-1
CN529	A-10	IC315	M-8	TP2	G-8
		IC316	L-3	TP3	H-1
CV401	A-7	IC318	D-9	TP4	J-1
		IC401	B-4	TP5	H-1
D2	L-4	IC403	C-2	TP6	G-1
D3	K-3	IC404	B-3	TP11	H-1
D4	J-3	IC405	B-5	TP12	H-1
D5	B-1			TP14	L-5
D6	C-1	PS503	N-10	TP15	L-6
D10	L-4	PS504	M-1	TP401	B-4
D11	M-7	PS601	F-10	TP402	C-4
D12	H-9	PS602	N-5		
D301	N-5			X1	H-3
D302	M-5	Q2	K-3	X302	J-7
D303	P-7	Q3	K-3		
D304	P-7	Q4	N-3		
D305	P-7	Q5	C-1		
D306	P-7	Q6	B-1		
D307	M-9	Q301	N-5		
D308	M-9	Q302	L-9		
D309	M-8	Q303	N-5		
D310	M-9	Q304	C-9		
D311	P-7	Q305	C-10		
D312	F-10	Q306	P-5		
D313	G-10	Q307	N-5		
D314	F-10	Q308	M-3		
D315	G-10	Q309	P-6		
D316	J-7	Q310	P-4		
D317	J-9	Q311	M-5		
D320	G-8	Q312	P-4		
D321	H-8	Q313	M-5		
D501	P-10	Q314	P-6		
D502	P-10	Q315	N-6		

SY-141C (1-629-560-41) S

IC1	D-6
IC6	K-6
IC307	H-7


B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
1A
1-629-560-41
SY-141C
CN519
CN521
CN513
CN514
CN522
CN515
CN516
CN509
CN512
CN518
CN525
CN527
CN528
CN529
CN526
CV401
IC1
IC2
IC3
IC5
IC10
IC17
IC18
IC103
IC303
IC305
IC306
IC307
IC311
IC318
IC401
IC403
IC404
IC405
PS601
X1

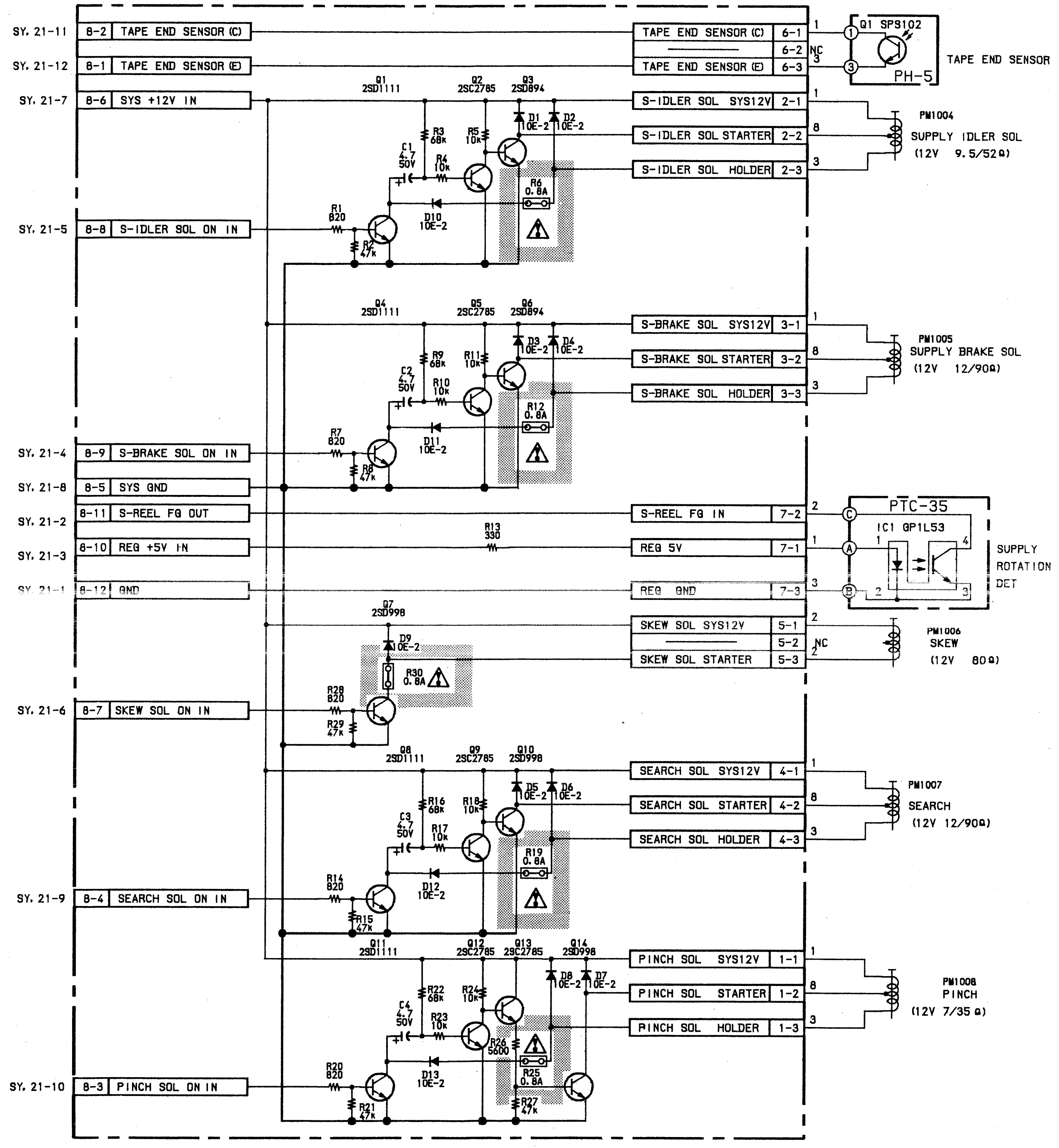
-560-41) S


B
C
D
E
F
G
H
J
K
L
M
N
P
1A
2
3
4
5
6
7
8
9
10
11
SONY
1-629-560-41
SY-141C
MADE IN JAPAN

SY-141C

—SOLDERING SIDE—
1-629-560-41
VO-9800P

PD-40: PLUNGER SOLENOIDS


SY. 21-11
SY. 21-12
SY. 21-7
SY. 21-5
SY. 21-4
SY. 21-8
SY. 21-2
SY. 21-3
SY. 21-1
SY. 21-6
SY. 21-9
SY. 21-10
8-2 TAPE END SENSOR (C)
8-1 TAPE END SENSOR (E)
8-6 SYS +12V IN
8-8 S-IDLER SOL ON IN
8-9 S-BRAKE SOL ON IN
8-5 SYS GND
8-11 S-REEL FG OUT
8-10 REG +5V IN
8-12 GND
8-7 SKEW SOL ON IN
8-4 SEARCH SOL ON IN
8-3 PINCH SOL ON IN
TAPE END SENSOR (C) 6-1
6-2
TAPE END SENSOR (E) 6-3
S-IDLER SOL SYS12V 2-1
S-IDLER SOL STARTER 2-2
S-IDLER SOL HOLDER 2-3
S-BRAKE SOL SYS12V 3-1
S-BRAKE SOL STARTER 3-2
S-BRAKE SOL HOLDER 3-3
S-REEL FG IN 7-2
REG 5V 7-1
REG GND 7-3
SKEW SOL SYS12V 5-1
5-2
SKEW SOL STARTER 5-3
SEARCH SOL SYS12V 4-1
SEARCH SOL STARTER 4-2
SEARCH SOL HOLDER 4-3
PINCH SOL SYS12V 1-1
PINCH SOL STARTER 1-2
PINCH SOL HOLDER 1-3
Q1 SPS102
PH-5
TAPE END SENSOR
PM1004
SUPPLY IDLER SOL
(12V 9.5/52Ω)
PM1005
SUPPLY BRAKE SOL
(12V 12/90Ω)
PTC-35
IC1 GP1L53
SUPPLY
ROTATION
DET
PM1006
SKEW
(12V 80Ω)
PM1007
SEARCH
(12V 12/90Ω)
PM1008
PINCH
(12V 7/35Ω)
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
Q7 2SD998
Q8 2SD1111
Q9 2SC2785
Q10 2SD998
Q11 2SD1111
Q12 2SC2785
Q13 2SC2785
Q14 2SD998
R13 330
R26 5600
NC

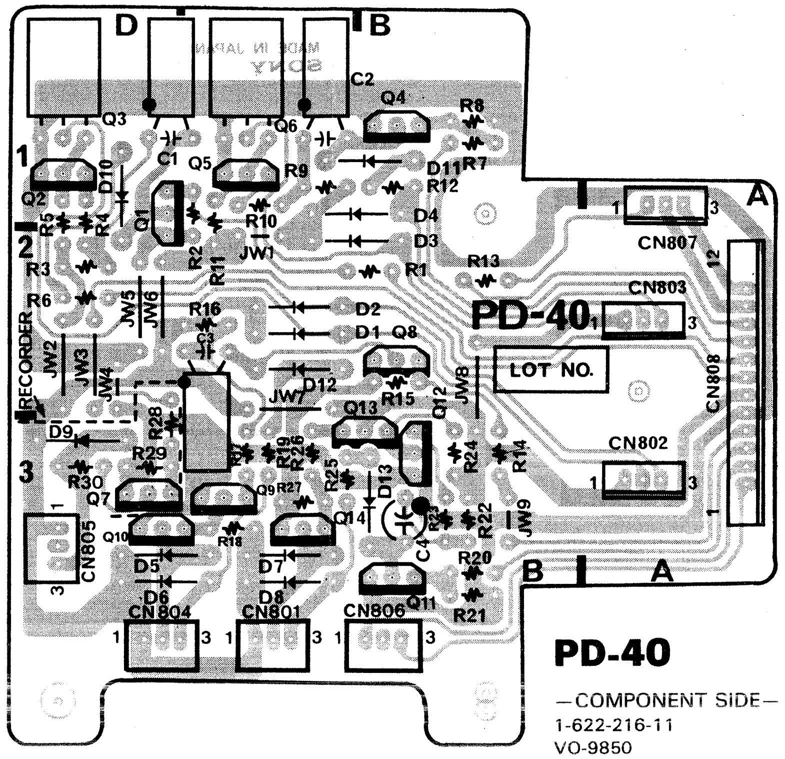
注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

PD-40

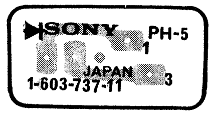
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-40: PLUNGER SOLENOIDS
PH-5: TAPE TOP/END DETECTOR
PTC-35: S/T REEL ROTATION DETECTOR


D
B
A
1
2
3
CN807
CN803
CN802
CN808
CN805
CN804
CN801
CN806
PD-40
LOT NO.
RECORDER
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14

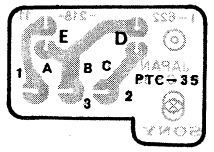
PD-40

—COMPONENT SIDE—
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P


SONY
PH-5
JAPAN
1-603-737-11

PH-5

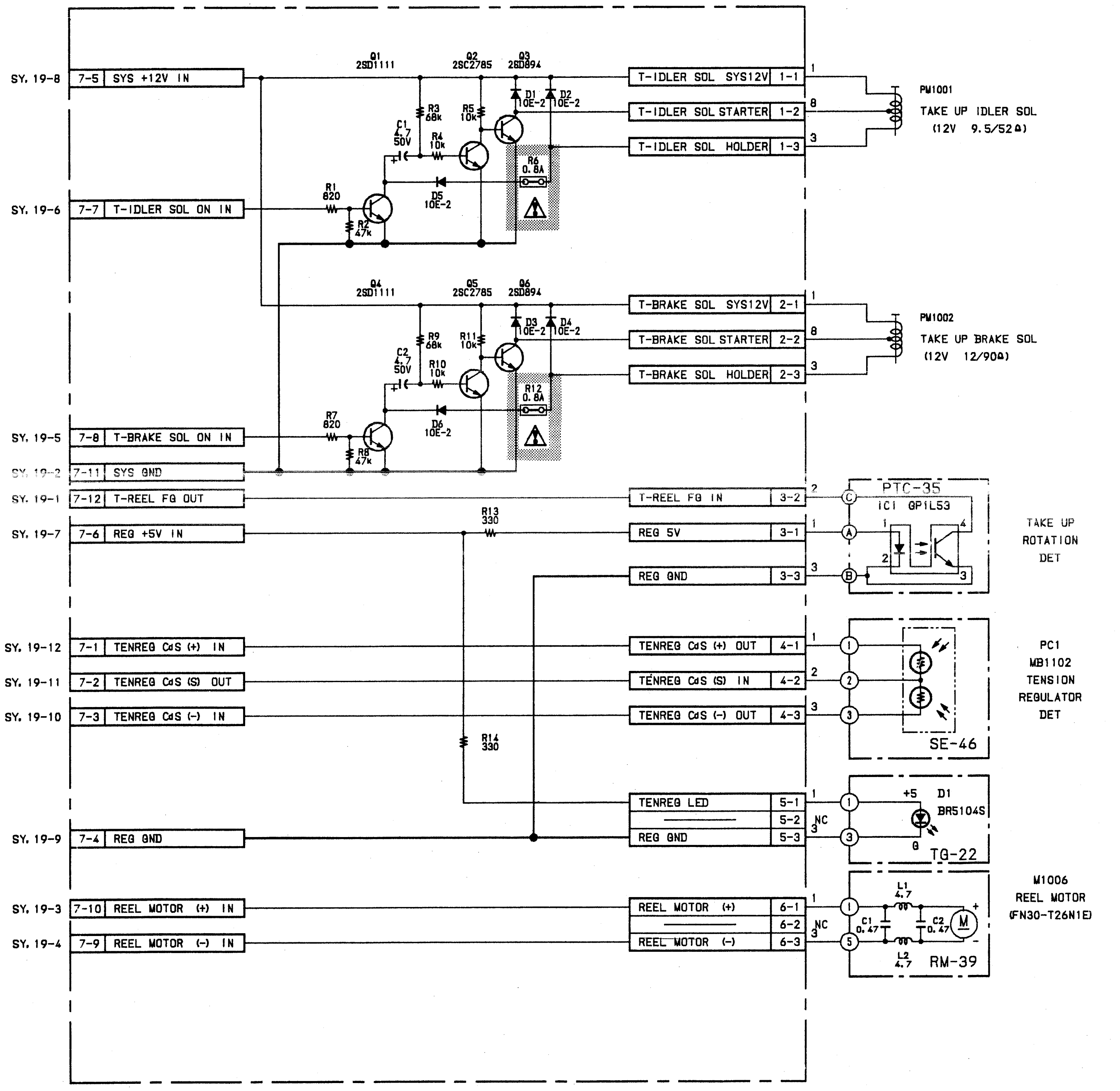
—COMPONENT SIDE—
1-603-737-11
VO-9850
VO-9850P
VO-9800
VO-9800P


E
D
A
B
C
PTC-35
1
2
3

PTC-35

—COMPONENT SIDE—
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-41: PLUNGER SOLENOIDS


SY. 19-8
7-5 SYS +12V IN
SY. 19-6
7-7 T-IDLER SOL ON IN
SY. 19-5
7-8 T-BRAKE SOL ON IN
SY. 19-2
7-11 SYS GND
SY. 19-1
7-12 T-REEL FG OUT
SY. 19-7
7-6 REG +5V IN
SY. 19-12
7-1 TENREG CdS (+) IN
SY. 19-11
7-2 TENREG CdS (S) OUT
SY. 19-10
7-3 TENREG CdS (-) IN
SY. 19-9
7-4 REG GND
SY. 19-3
7-10 REEL MOTOR (+) IN
SY. 19-4
7-9 REEL MOTOR (-) IN
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
D1 10E-2
D2 10E-2
R3 68k
R5 10k
C1 4.7 50V
R4 10k
R6 0.8A
R1 820
R2 47k
D5 10E-2
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
D3 10E-2
D4 10E-2
R9 68k
R11 10k
C2 4.7 50V
R10 10k
R12 0.8A
R7 820
R8 47k
D6 10E-2
R13 330
R14 330
T-IDLER SOL SYS12V 1-1
T-IDLER SOL STARTER 1-2
T-IDLER SOL HOLDER 1-3
T-BRAKE SOL SYS12V 2-1
T-BRAKE SOL STARTER 2-2
T-BRAKE SOL HOLDER 2-3
T-REEL FG IN 3-2
REG 5V 3-1
REG GND 3-3
TENREG CdS (+) OUT 4-1
TENREG CdS (S) IN 4-2
TENREG CdS (-) OUT 4-3
TENREG LED 5-1
5-2
REG GND 5-3
REEL MOTOR (+) 6-1
6-2
REEL MOTOR (-) 6-3
NC
PM1001
TAKE UP IDLER SOL
(12V 9.5/52Ω)
PM1002
TAKE UP BRAKE SOL
(12V 12/90Ω)
PTC-35
IC1 GP1L53
TAKE UP ROTATION DET
SE-46
PC1 MB1102 TENSION REGULATOR DET
+5 D1 BR5104S
G
TG-22
L1 4.7
C1 0.47
C2 0.47
L2 4.7
M
RM-39
M1006 REEL MOTOR (FN30-T26N1E)

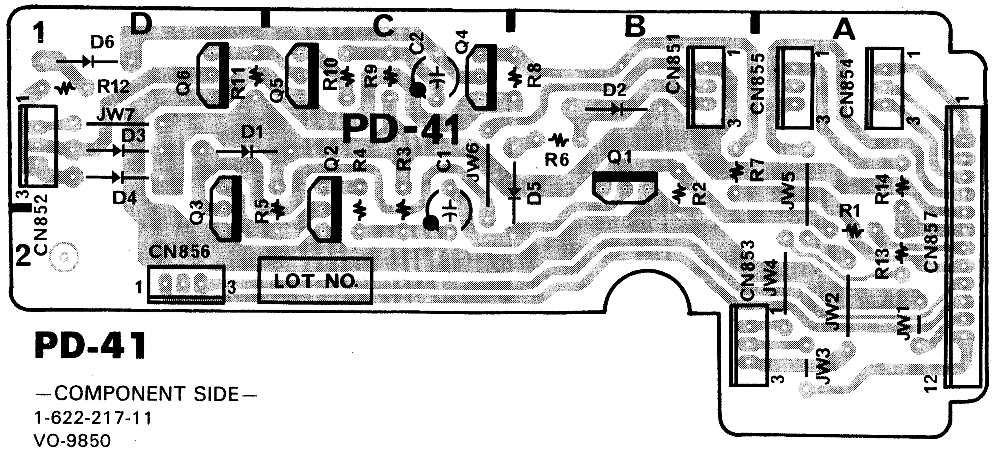
PD-41

1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

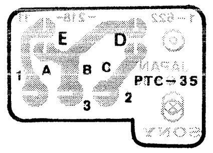
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

PD-41: PLUNGER SOLENOIDS
PTC-35: S/T REEL ROTATION DETECTOR
RM-39: REEL MOTOR
SE-46: TENSION REGULATOR DETECTOR
TG-22: TENSION REGULATOR LED


1
2
D
C
B
A
D6
R12
JW7
D3
D4
CN852
CN856
LOT NO.
Q6
R11
Q5
R10
R9
C2
Q4
R8
PD-41
D1
Q2
R4
R3
C1
JW6
D5
Q3
R5
D2
CN851
R6
Q1
R2
R7
CN855
CN854
JW5
R14
R1
R13
CN857
CN853
JW4
JW2
JW3
JW1
12

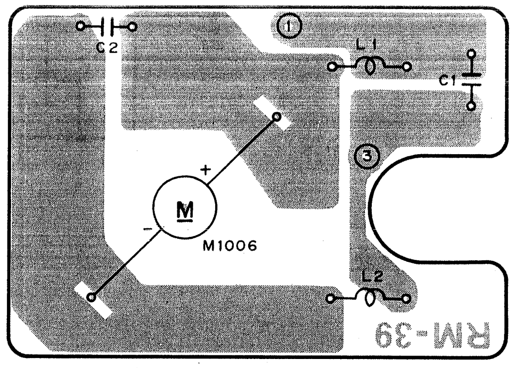
PD-41

—COMPONENT SIDE—
1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P


E
D
A
B
C
PTC-35
2
3

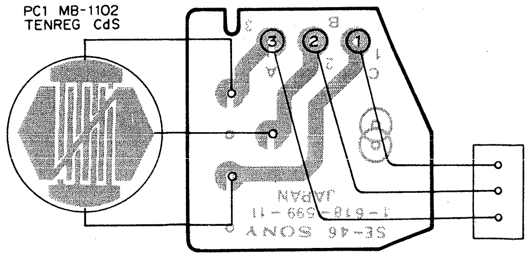
PTC-35

—COMPONENT SIDE—
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P


C2
①
L1
C1
③
M
M1006
L2
RM-39

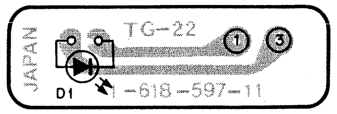
RM-39

—COMPONENT SIDE—
1-618-873-11
VO-9850
VO-9850P
VO-9800
VO-9800P


PC1 MB-1102
TENREG CdS
③
②
①
A
B
C
JAPAN
1-618-599-11
SE-46 SONY

SE-46

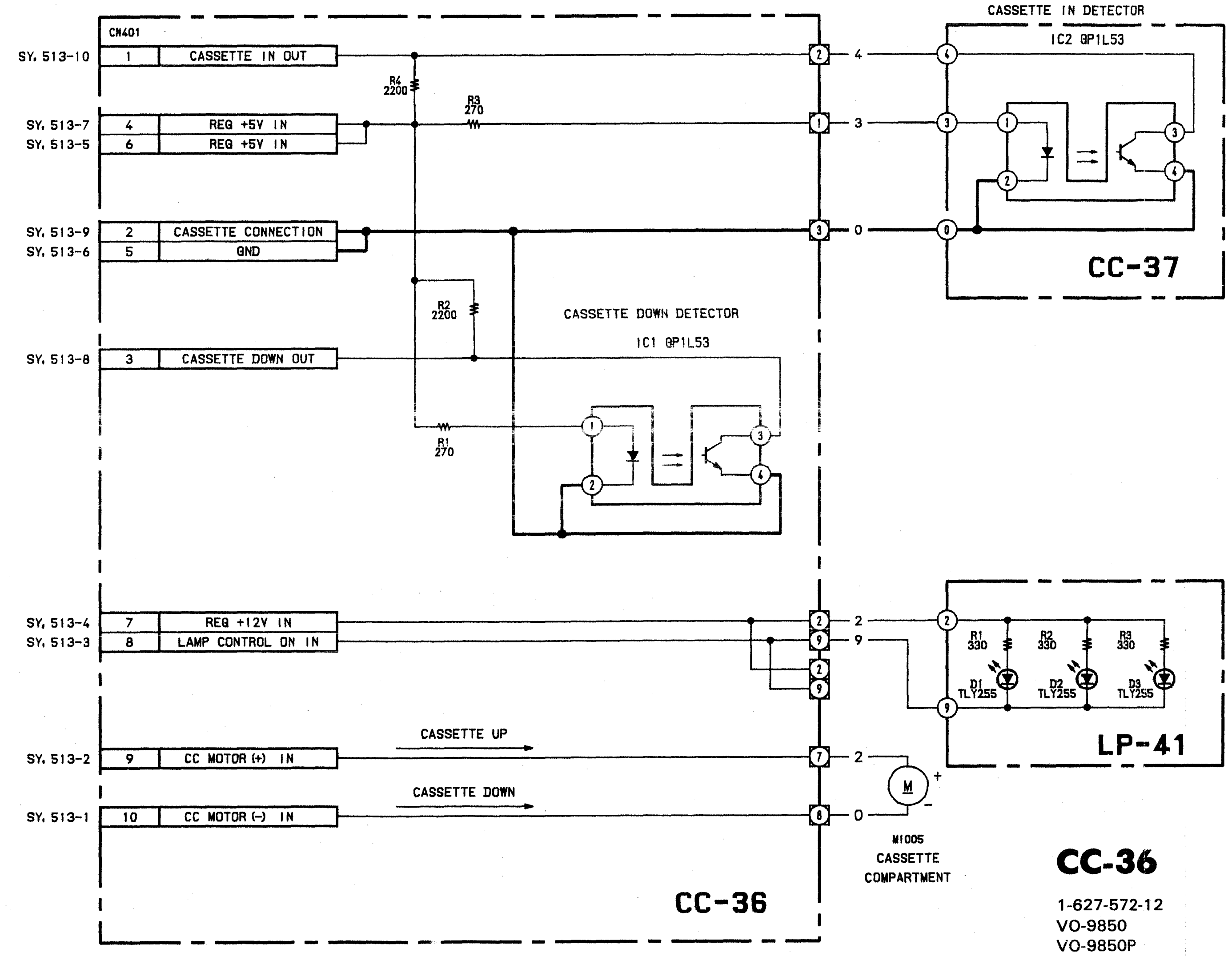
—SOLDERING SIDE—
1-618-599-11
VO-9850
VO-9850P
VO-9800
VO-9800P


TG-22
①
③
JAPAN
D1
1-618-597-11

TG-22

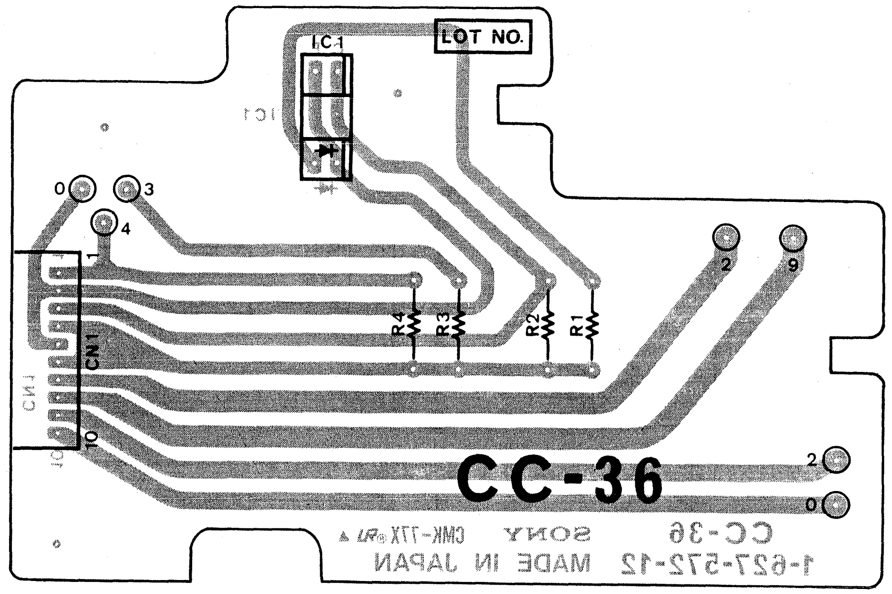
—COMPONENT SIDE—
1-618-597-11
VO-9850
VO-9850P
VO-9800
VO-9800P

CC-36: JUNCTION BOARD FOR CC-37, LP-41
CC-37: CASSETTE IN DETECTOR
LP-41: CASSETTE COMPARTMENT LAMP


CN401
SY, 513-10
1 CASSETTE IN OUT
SY, 513-7
4 REG +5V IN
SY, 513-5
6 REG +5V IN
SY, 513-9
2 CASSETTE CONNECTION
SY, 513-6
5 GND
SY, 513-8
3 CASSETTE DOWN OUT
SY, 513-4
7 REG +12V IN
SY, 513-3
8 LAMP CONTROL ON IN
SY, 513-2
9 CC MOTOR (+) IN
SY, 513-1
10 CC MOTOR (–) IN
R4 2200
R3 270
R2 2200
R1 270
CASSETTE DOWN DETECTOR
IC1 GP1L53
CASSETTE IN DETECTOR
IC2 GP1L53
CC-37
R1 330
R2 330
R3 330
D1 TLY255
D2 TLY255
D3 TLY255
LP-41
CASSETTE UP
CASSETTE DOWN
M
M1005
CASSETTE
COMPARTMENT
CC-36

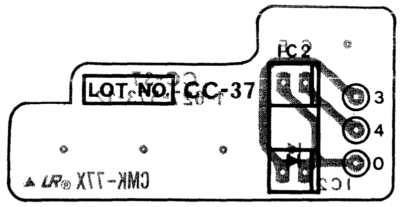
CC-36

1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P


IC1
LOT NO.
0
3
4
1
10
CN1
R4
R3
R2
R1
2
9
2
0
CC-36
CMK-77X
SONY
CC-36
1-627-572-12
MADE IN JAPAN

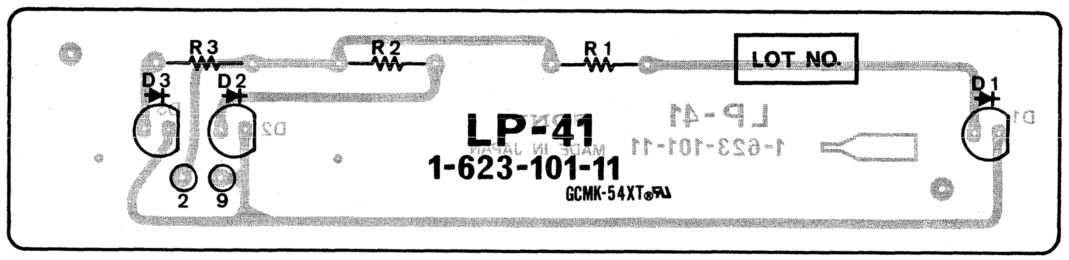
CC-36

—COMPONENT SIDE—
1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P


LOT NO.
CC-37
IC2
3
4
0
CMK-77X

CC-37

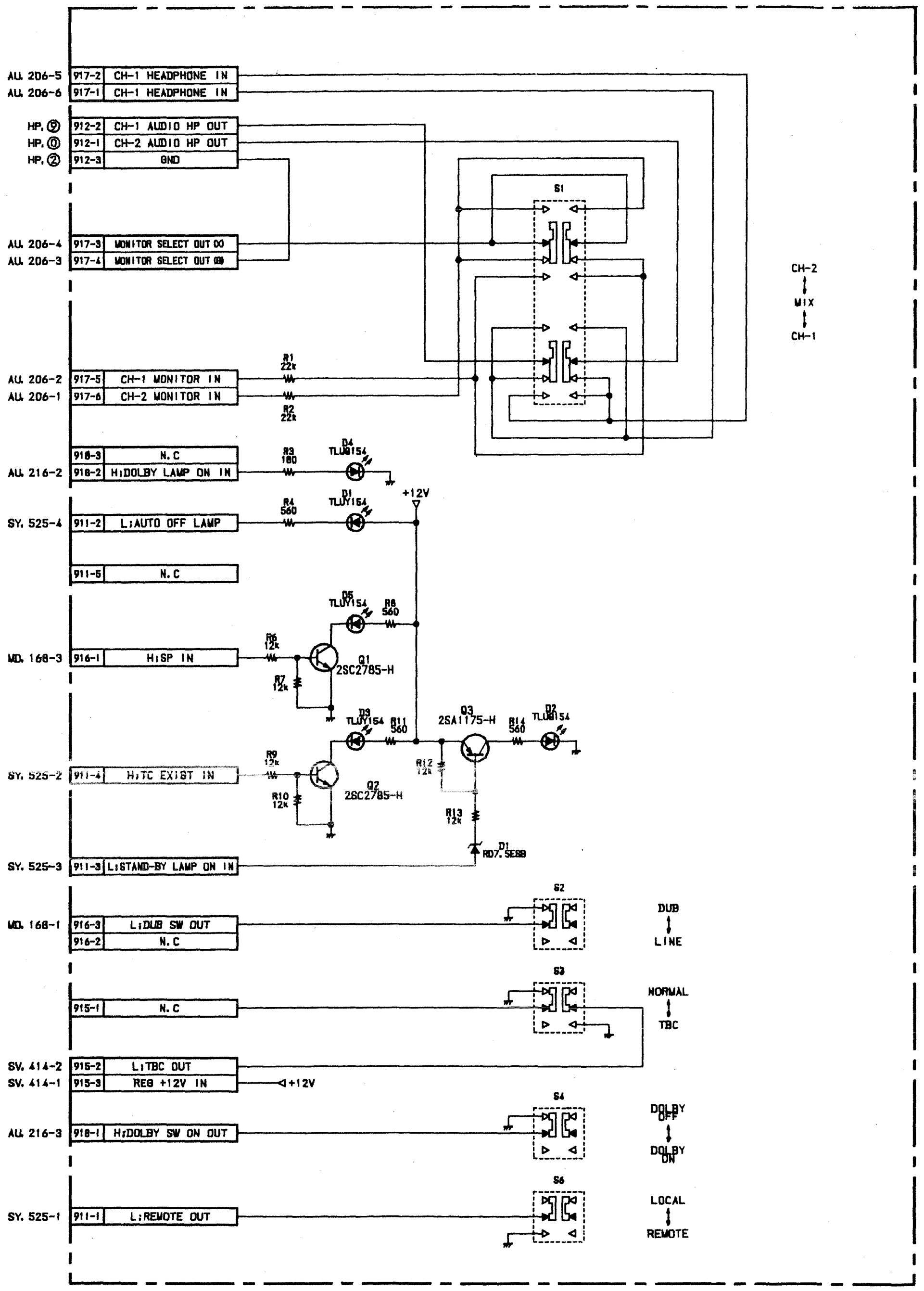
—COMPONENT SIDE—
1-627-573-12
VO-9850
VO-9850P
VO-9800
VO-9800P


R3
R2
R1
LOT NO.
D3
D2
D1
LP-41
1-623-101-11
GCMK-54XT
2
9

LP-41

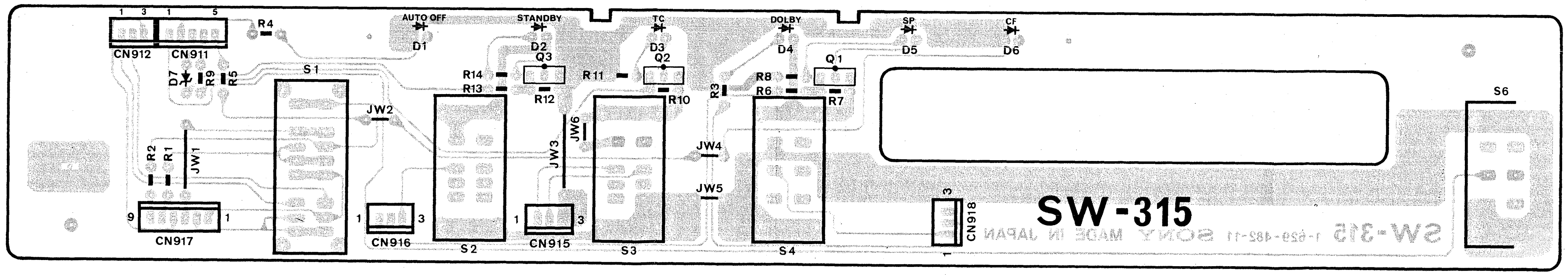
—COMPONENT SIDE—
1-623-101-11
VO-9850
VO-9850P
VO-9800
VO-9800P

SW-315A: SELECT SWITCH


AU. 206-5
AU. 206-6
917-2 CH-1 HEADPHONE IN
917-1 CH-1 HEADPHONE IN
HP. ⑨
HP. ⓪
HP. ②
912-2 CH-1 AUDIO HP OUT
912-1 CH-2 AUDIO HP OUT
912-3 GND
AU. 206-4
AU. 206-3
917-3 MONITOR SELECT OUT
917-4 MONITOR SELECT OUT
AU. 206-2
AU. 206-1
917-5 CH-1 MONITOR IN
917-6 CH-2 MONITOR IN
R1 22k
R2 22k
S1
CH-2
MIX
CH-1
918-3 N.C
AU. 216-2
918-2 H;DOLBY LAMP ON IN
R3 180
D4 TLUG154
SY. 525-4
911-2 L;AUTO OFF LAMP
R4 560
D1 TLUY154
+12V
911-5 N.C
D5 TLUY154
R8 560
MD. 168-3
916-1 H;SP IN
R6 12k
R7 12k
Q1 2SC2785-H
D3 TLUY154
R11 560
Q3 2SA1175-H
R14 560
D2 TLUG154
SY. 525-2
911-4 H;TC EXIST IN
R9 12k
R10 12k
Q2 2SC2785-H
R12 12k
R13 12k
D1 RD7.5EB
SY. 525-3
911-3 L;STAND-BY LAMP ON IN
S2
MD. 168-1
916-3 L;DUB SW OUT
916-2 N.C
DUB
LINE
S3
915-1 N.C
NORMAL
TBC
SV. 414-2
SV. 414-1
915-2 L;TBC OUT
915-3 REG +12V IN
+12V
S4
AU. 216-3
918-1 H;DOLBY SW ON OUT
DOLBY OFF
DOLBY ON
S6
SY. 525-1
911-1 L;REMOTE OUT
LOCAL
REMOTE

SW-315A

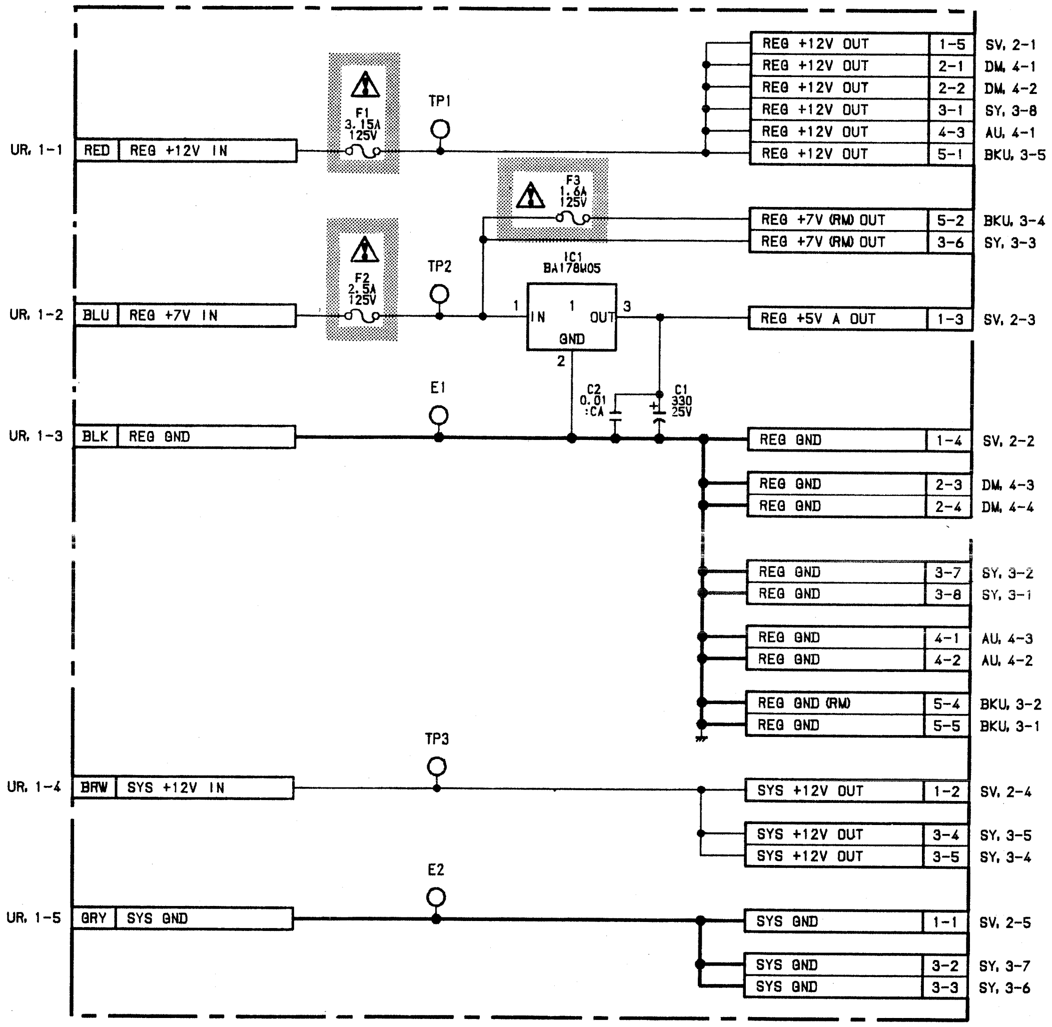
1-629-482-11
VO-9800
VO-9800P


CN912
CN911
R4
AUTO OFF
D1
STANDBY
D2
Q3
TC
D3
Q2
DOLBY
D4
Q1
SP
D5
CF
D6
D7
R9
R5
S1
R14
R13
R12
R11
R10
R3
R8
R6
R7
JW2
JW6
JW3
JW4
JW5
R2
R1
JW1
S6
9
1
CN917
CN916
S2
CN915
S3
S4
CN918
SW-315

SW-315A

—COMPONENT SIDE—
1-629-482-11
VO-9800
VO-9800P

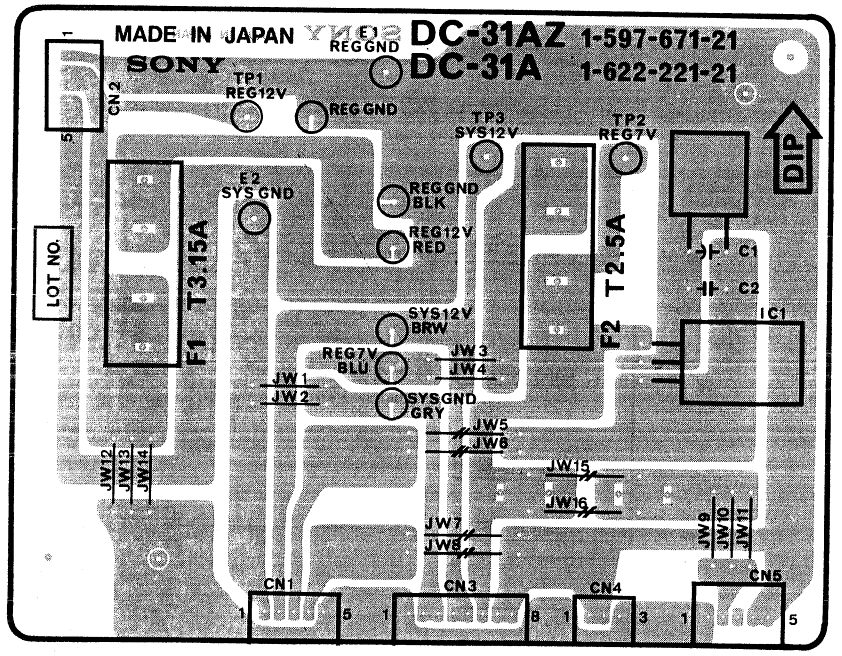
DC-31P: DC SUPPLY


UR, 1-1
RED
REG +12V IN
F1
3.15A
125V
TP1
REG +12V OUT 1-5 SV, 2-1
REG +12V OUT 2-1 DM, 4-1
REG +12V OUT 2-2 DM, 4-2
REG +12V OUT 3-1 SY, 3-8
REG +12V OUT 4-3 AU, 4-1
REG +12V OUT 5-1 BKU, 3-5
F3
1.6A
125V
REG +7V (RM) OUT 5-2 BKU, 3-4
REG +7V (RM) OUT 3-6 SY, 3-3
F2
2.5A
125V
TP2
IC1
BA178M05
1
IN
OUT
GND
3
2
UR, 1-2
BLU
REG +7V IN
REG +5V A OUT 1-3 SV, 2-3
E1
C2
0.01
:CA
C1
330
25V
UR, 1-3
BLK
REG GND
REG GND 1-4 SV, 2-2
REG GND 2-3 DM, 4-3
REG GND 2-4 DM, 4-4
REG GND 3-7 SY, 3-2
REG GND 3-8 SY, 3-1
REG GND 4-1 AU, 4-3
REG GND 4-2 AU, 4-2
REG GND (RM) 5-4 BKU, 3-2
REG GND 5-5 BKU, 3-1
TP3
UR, 1-4
BRW
SYS +12V IN
SYS +12V OUT 1-2 SV, 2-4
SYS +12V OUT 3-4 SY, 3-5
SYS +12V OUT 3-5 SY, 3-4
E2
UR, 1-5
GRY
SYS GND
SYS GND 1-1 SV, 2-5
SYS GND 3-2 SY, 3-7
SYS GND 3-3 SY, 3-6

DC-31P

1-622-221-21
VO-9850P
VO-9800P

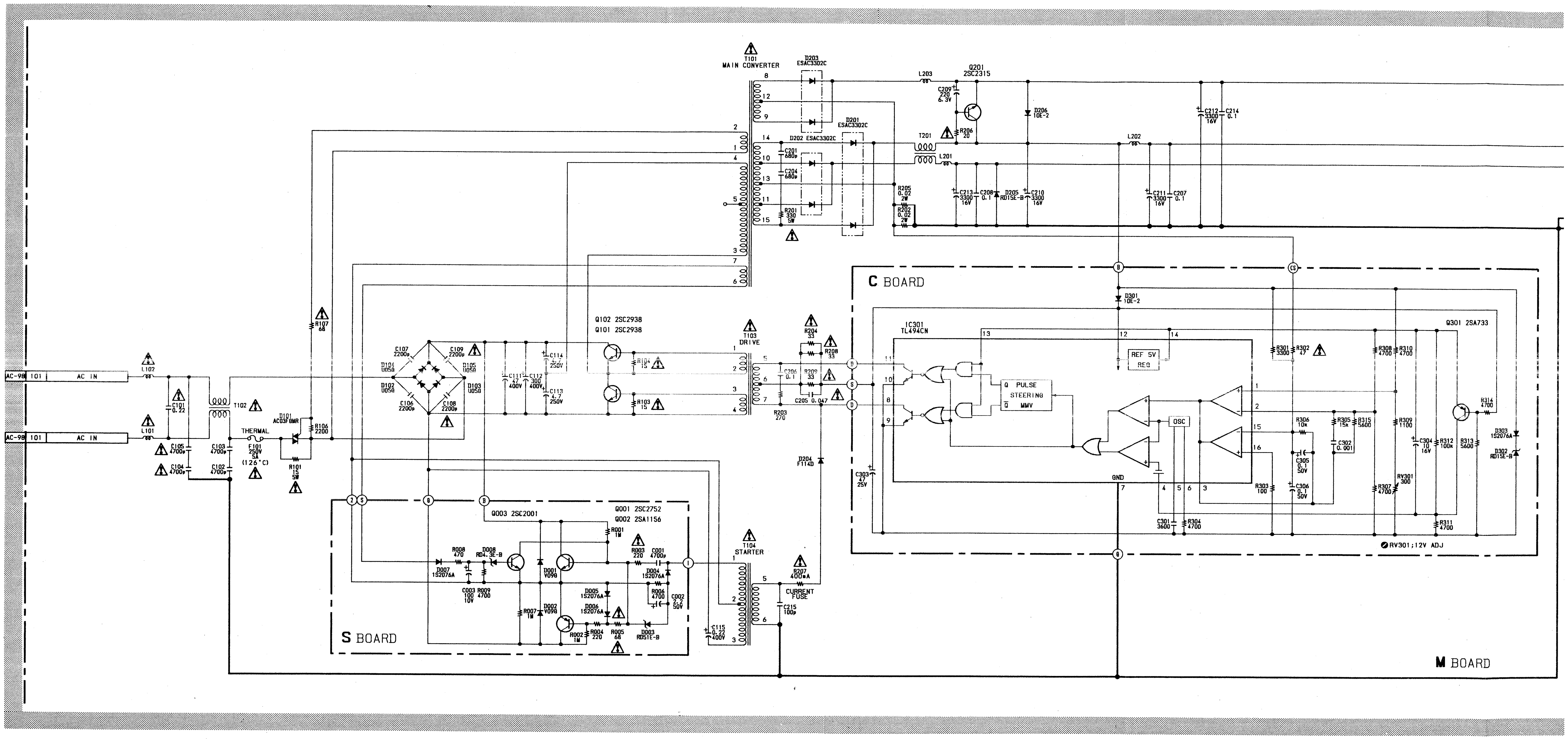
NOTE:
The ⚠ -marked components are critical to safety. Replace only with some components as specified.


MADE IN JAPAN
SONY
E1
REGGND
DC-31AZ 1-597-671-21
DC-31A 1-622-221-21
CN2
1
5
TP1
REG12V
REG GND
TP3
SYS12V
TP2
REG7V
DIP
E2
SYS GND
REG GND
BLK
REG12V
RED
LOT NO.
T3.15A
F1
T2.5A
F2
C1
C2
IC1
SYS12V
BRW
REG7V
BLU
SYSGND
GRY
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
CN1
CN3
CN4
CN5
1
5
1
8
1
3
1
5

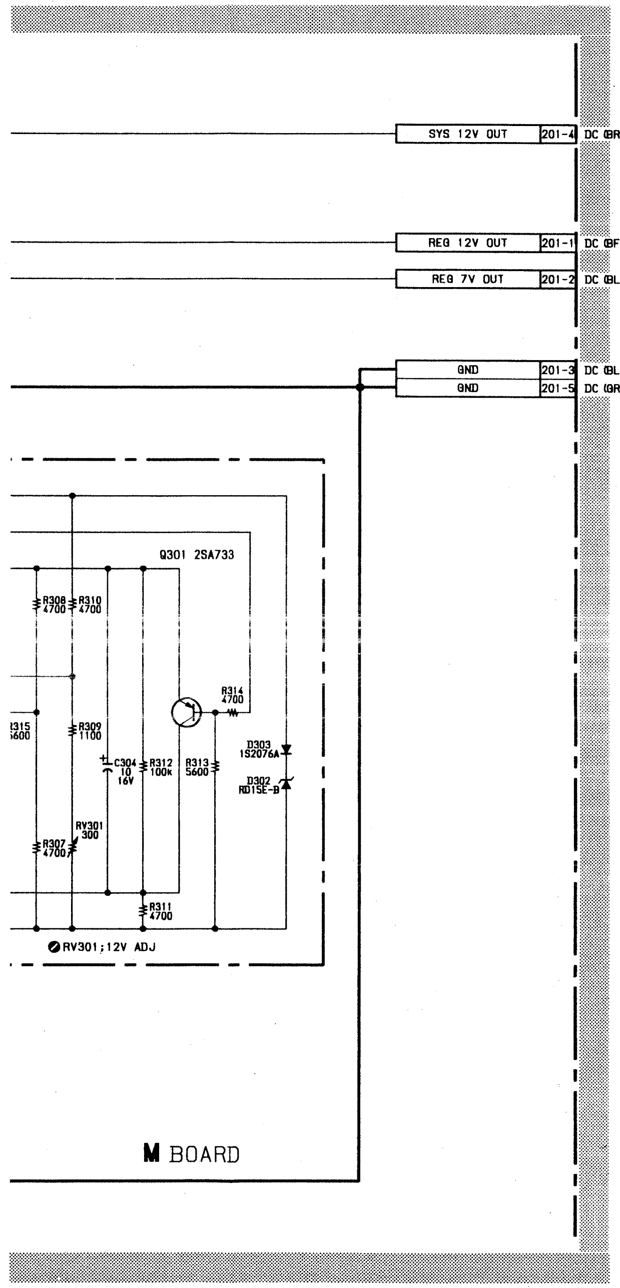
DC-31P

—COMPONENT SIDE—
1-622-221-21
VO-9850P
VO-9800P

UR-02: SWITCHING REGULATOR

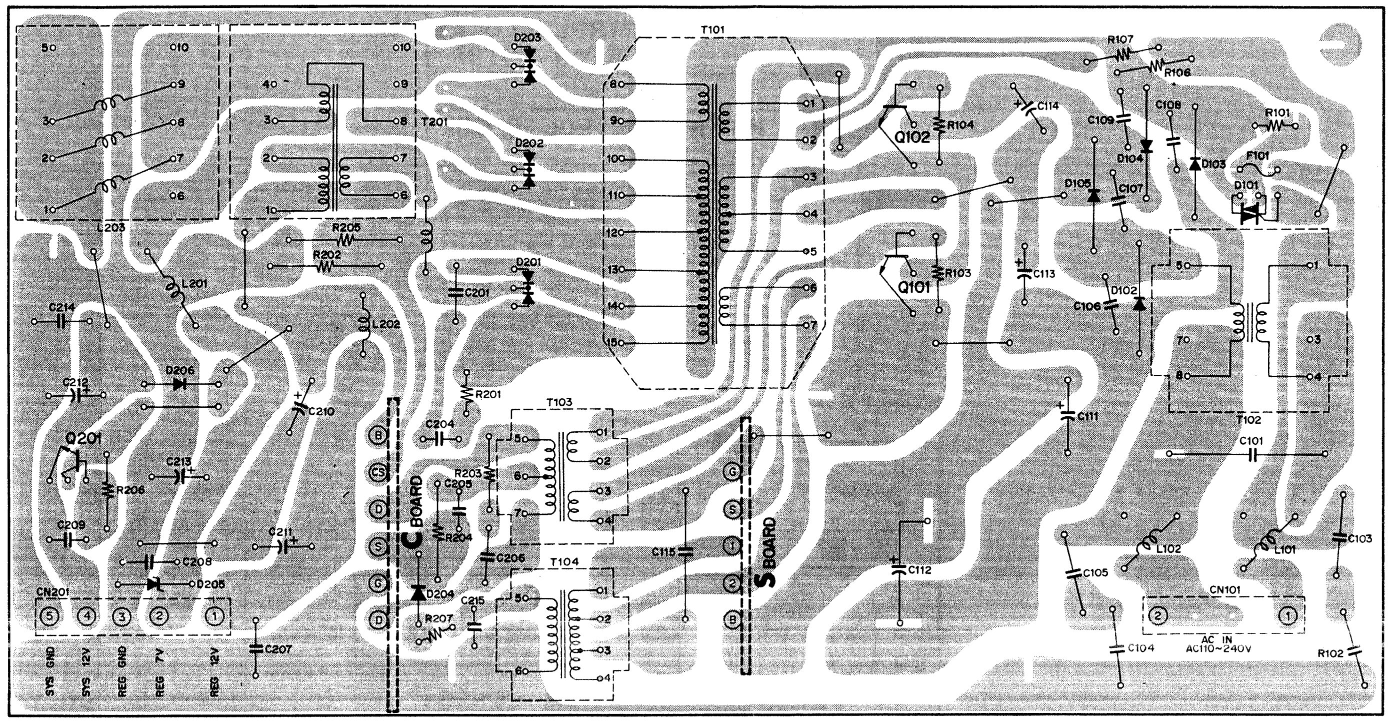

AC-98 101 AC IN
AC-98 101 AC IN
L102
L101
C101 0.22
C105 4700p
C104 4700p
C103 4700p
C102 4700p
T102
THERMAL
F101 250V 5A (126°C)
D101 AC03F8MR
R101 15 5W
R106 2200
R107 68
C107 2200p
C109 2200p
C106 2200p
C108 2200p
D104 U05B
D105 U05B
D102 U05B
D103 U05B
C111 47 400V
C112 300 400V
C114 4.7 250V
C113 4.7 250V
Q102 2SC2938
Q101 2SC2938
R104 15
R103 15
T101 MAIN CONVERTER
D203 ESAC3302C
D202 ESAC3302C
D201 ESAC3302C
C201 680p
C204 680p
R201 330 5W
L203
Q201 2SC2315
C209 220 6.3V
R206 20
D206 10E-2
T201
L201
R205 0.02 2W
R202 0.02 2W
C213 3300 16V
C208 0.1
D205 RD15E-B
C210 3300 16V
L202
C212 3300 16V
C214 0.1
C211 3300 16V
C207 0.1
T103 DRIVE
R204 33
R208 33
R209 33
C206 0.1
R203 270
C205 0.047
D204 F114D
T104 STARTER
R207 400mA CURRENT FUSE
C215 100p
C115 0.22 400V
S BOARD
Q003 2SC2001
Q001 2SC2752
Q002 2SA1156
R001 1M
R002 1M
R003 220
R004 220
R005 68
R006 4700
R007 1M
R008 470
R009 4700
C001 4700p
C002 2.2 50V
C003 100 10V
D001 V09B
D002 V09B
D003 RD51E-B
D004 1S2076A
D005 1S2076A
D006 1S2076A
D007 1S2076A
D008 RD4.3E-B
C BOARD
IC301 TL494CN
REF 5V REG
Q PULSE STEERING
Q̄ MMV
OSC
GND
D301 10E-2
C303 47 25V
C301 3600
R304 4700
R303 100
R306 10k
C305 0.1 50V
C306 0.1 50V
R305 15k
R315 5600
C302 0.001
R301 3300
R302 47
R308 4700
R310 4700
R309 1100
R307 4700
RV301 300
C304 10 16V
R312 100k
R311 4700
Q301 2SA733
R314 4700
R313 5600
D303 1S2076A
D302 RD15E-B
RV301;12V ADJ
M BOARD

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

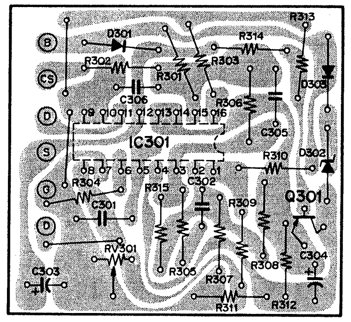

SYS 12V OUT
201-4 DC (BRW)
REG 12V OUT
201-1 DC (BFD)
REG 7V OUT
201-2 DC (BLU)
GND
201-3 DC (BLK)
GND
201-5 DC (GRY)
Q301 2SA733
R308 4700
R310 4700
R314 4700
R309 1100
C304 10 16V
R312 100k
R313 5600
D303 1S2076A
D302 RD15E-B
RV301 300
R307 4700
R311 4700
RV301 ; 12V ADJ
M BOARD

UR-02

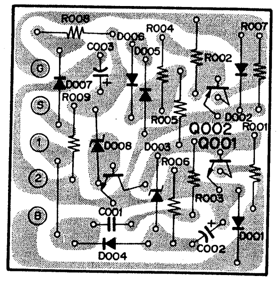
1-413-075-00
VO-9850P
VO-9800P


T101
T201
T102
T103
T104
CN201
CN101
AC IN AC110-240V
C BOARD
S BOARD
Q101
Q102
Q201
F101
SYS GND
SYS 12V
REG GND
REG 7V
REG 12V

M –SOLDERING SIDE–


IC301
Q301
RV301

C–SOLDERING SIDE–

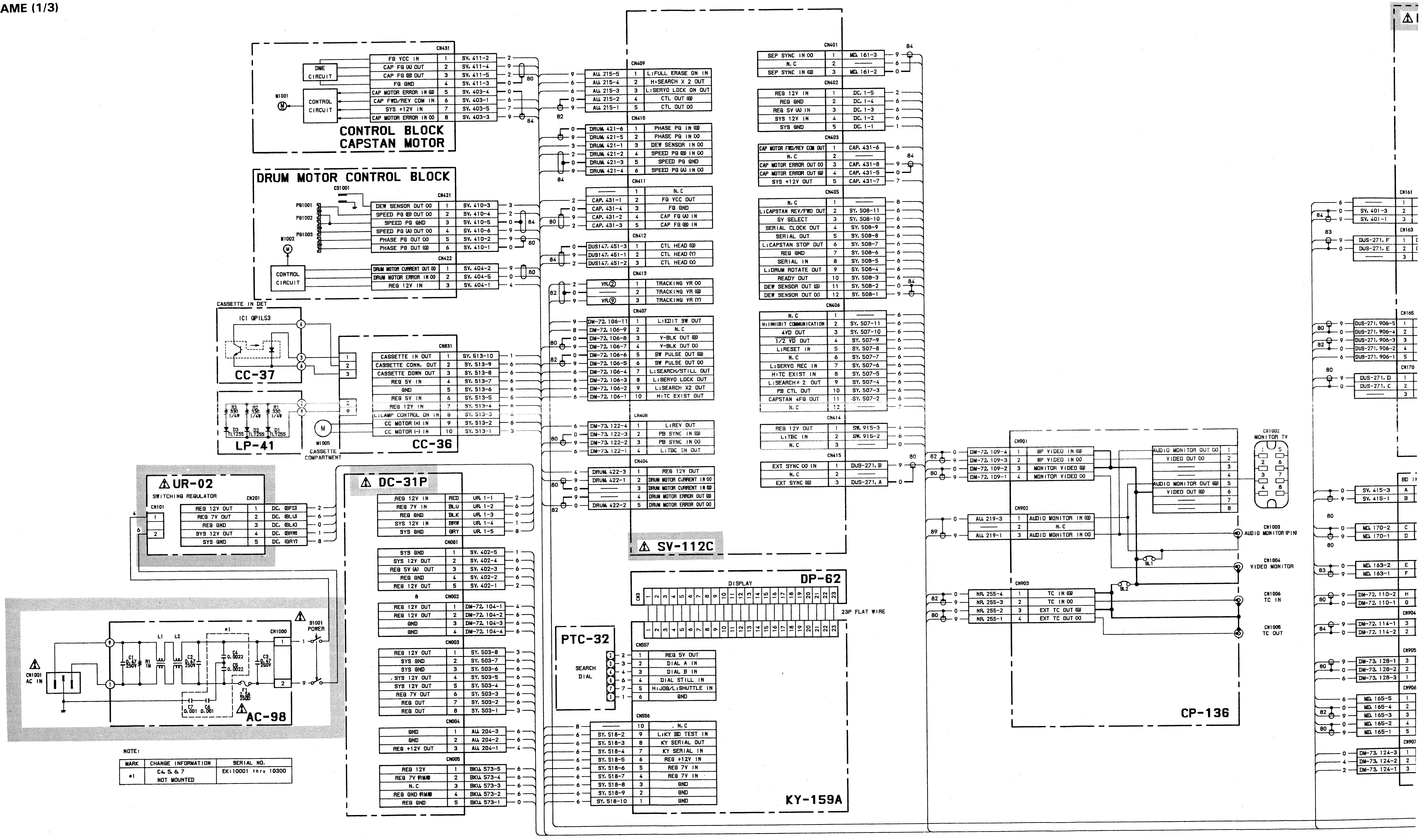


S –SOLDERING SIDE–

UR-02

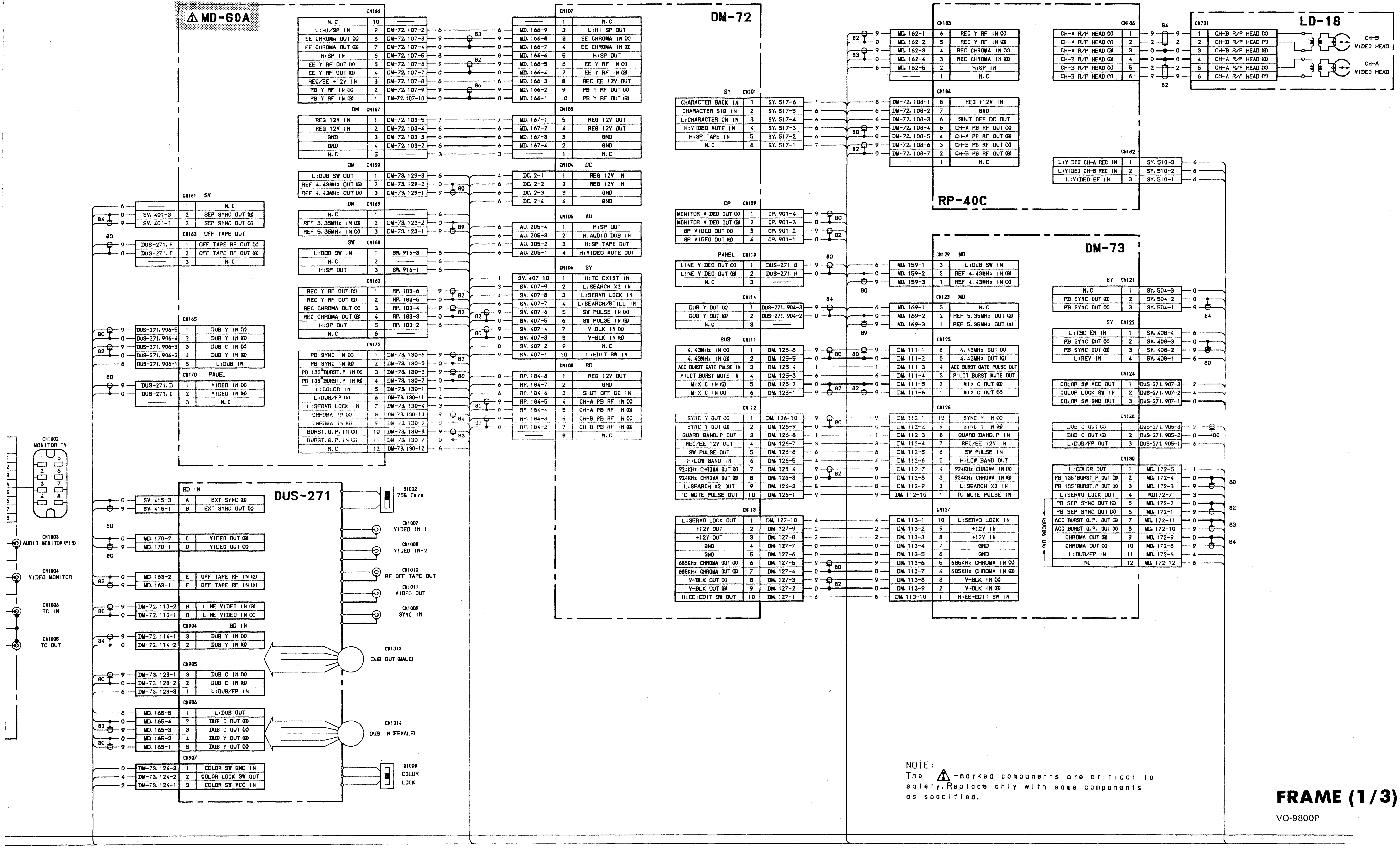
–SOLDERING SIDE–
1-413-075-00
VO-9850P
VO-9800P

FRAME (1/3)


CONTROL BLOCK
CAPSTAN MOTOR
DRUM MOTOR CONTROL BLOCK
CONTROL CIRCUIT
DME CIRCUIT
M1001
M1002
CS1001
PG1001
PG1002
PG1003
CASSETTE IN DET
IC1 GP1L53
CC-37
LP-41
CC-36
M1005
CASSETTE COMPARTMENT
⚠ UR-02
SWITCHING REGULATOR
⚠ DC-31P
AC-98
CN1001
AC IN
S1001
POWER
F1
2.5A
250V
⚠ SV-112C
DP-62
DISPLAY
23P FLAT WIRE
PTC-32
SEARCH DIAL
KY-159A
CP-136
CN1002
MONITOR TV
CN1003
AUDIO MONITOR (PIN)
CN1004
VIDEO MONITOR
CN1005
TC IN
CN1006
TC OUT
SL1
SL2

NOTE:

MARK	CHANGE INFORMATION	SERIAL NO.
*1	C4, 5, 6, 7 NOT MOUNTED	EK:10001 thru 10300


⚠ MD-60A
DM-72
RP-40C
LD-18
DM-73
DUS-271
CH-B VIDEO HEAD
CH-A VIDEO HEAD
CN1002 MONITOR TV
CN1003 AUDIO MONITOR (P1110)
CN1004 VIDEO MONITOR
CN1006 TC IN
CN1005 TC OUT
S1002 75Ω Term
CN1007 VIDEO IN-1
CN1008 VIDEO IN-2
CN1010 RF OFF TAPE OUT
CN1011 VIDEO OUT
CN1009 SYNC IN
CN1013 DUB OUT (MALE)
CN1014 DUB IN (FEMALE)
S1003 COLOR LOCK
(VO-9800P)

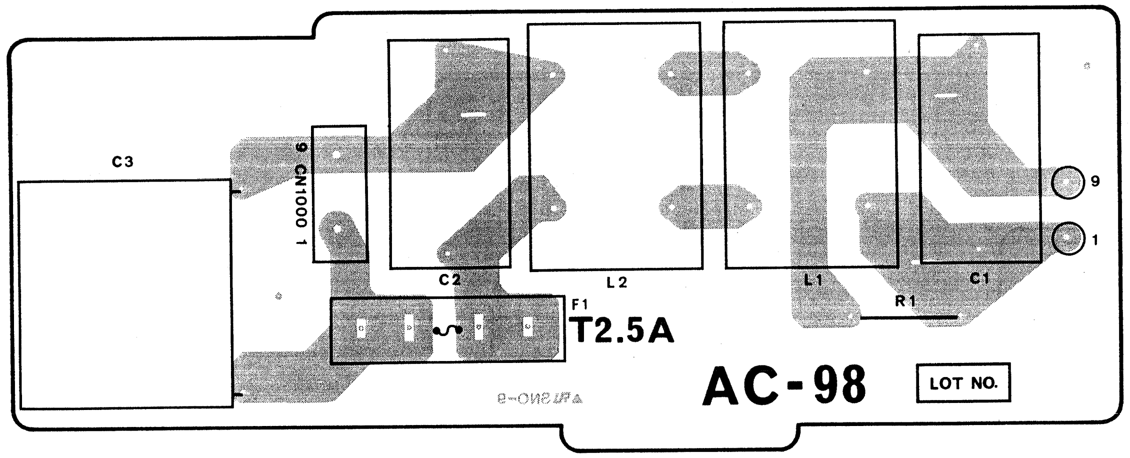
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

FRAME (1/3)

VO-9800P

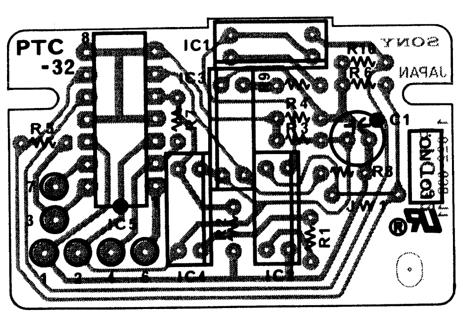
AC-98: LINE FILTER
PTC-32: SEARCH DIAL

EK; S/N 10001 thru 10300


C3
9 CN1000 1
C2
L2
L1
R1
C1
9
1
F1
T2.5A
AC-98
LOT NO.

AC-98

—COMPONENT SIDE—
1-630-457-12
VO-9850P
VO-9800P

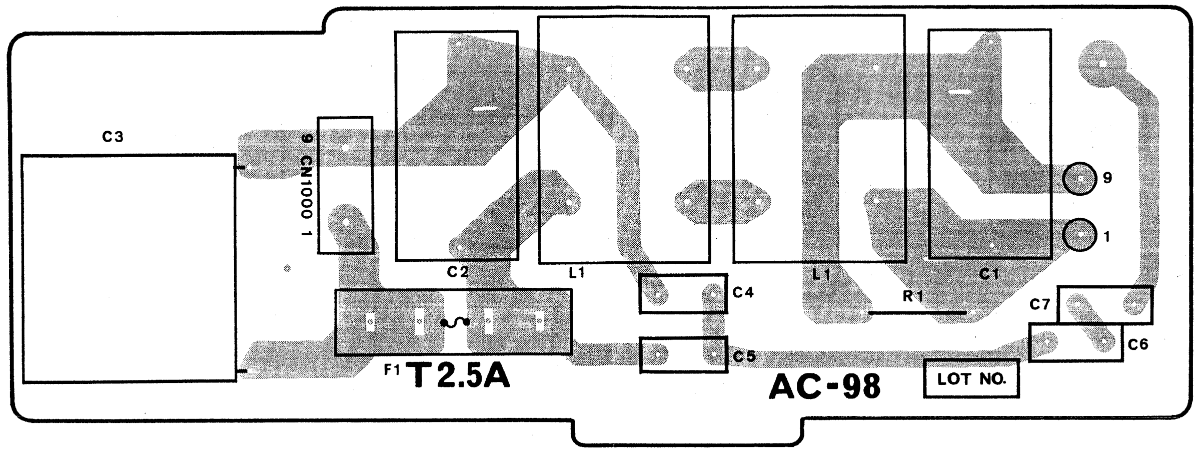

PTC
-32
IC1
IC3
IC2
IC4
IC5
R1
R4
R5
R8
R10
C1
SONY
JAPAN
1
2
3
7
8

PTC-32

—COMPONENT SIDE—
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

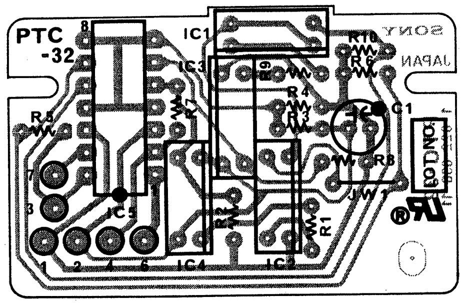
AC-98: LINE FILTER
PTC-32: SEARCH DIAL

EK; S/N 10301 and higher


C3
9 CN1000 1
C2
L1
L1
R1
C1
C4
C5
C6
C7
9
1
F1
T2.5A
AC-98
LOT NO.

AC-98

—COMPONENT SIDE—
1-630-457-13
VO-9850P
VO-9800P

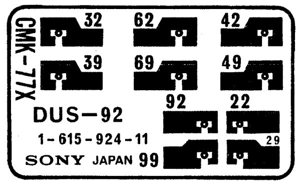

PTC
-32
IC1
IC3
IC4
IC5
R1
R4
R5
R8
R10
C1
SONY
JAPAN
1
2
3
7
8

PTC-32

—COMPONENT SIDE—
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

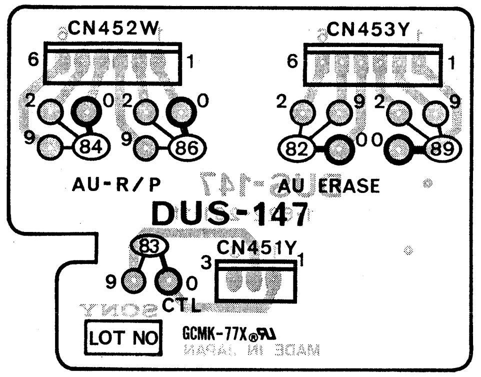
DUS-92: AUDIO R/P HEAD, AUDIO ERASE HEAD
DUS-147: JUNCTION BOARD FOR AUDIO HEAD
HN-130: ERASE HEAD, JUNCTION BOARD FOR TIME CODE HEAD
HN-84: TIME CODE HEAD
EC-32: FR CTL HEAD
MT-53: METER LAMP

HP-42: HEADPHONES
MC-28: MIC IN
VR-80: REC LEVEL, LIMITER ON/OFF


CMK-77X
32
62
42
39
69
49
92
22
29
DUS-92
1-615-924-11
SONY JAPAN 99

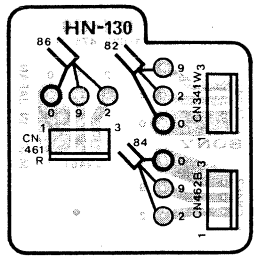
DUS-92

–COMPONENT SIDE–
1-615-924-11
VO-9850
VO-9850P
VO-9800
VO-9800P


CN452W
CN453Y
6
1
84
86
82
89
AU-R/P
AU ERASE
DUS-147
83
CN451Y
3
1
9
0
CTL
LOT NO
GCMK-77X
SONY
MADE IN JAPAN

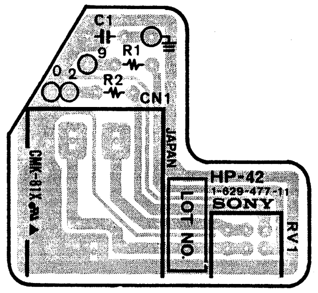
DUS-147

–COMPONENT SIDE–
1-622-261-11
VO-9850
VO-9850P
VO-9800
VO-9800P


HN-130
86
82
CN341W
84
CN462B
CN461

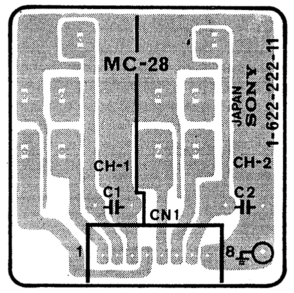
HN-130

–COMPONENT SIDE–
1-629-474-11
VO-9850
VO-9850P
VO-9800
VO-9800P


C1
R1
R2
CN1
JAPAN
HP-42
1-629-477-11
SONY
LOT NO.
RV1
CMK-81X

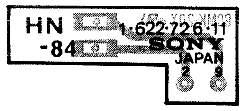
HP-42

–COMPONENT SIDE–
1-629-477-11
VO-9850
VO-9850P
VO-9800
VO-9800P


MC-28
JAPAN
SONY
1-622-222-11
CH-1
CH-2
C1
C2
CN1

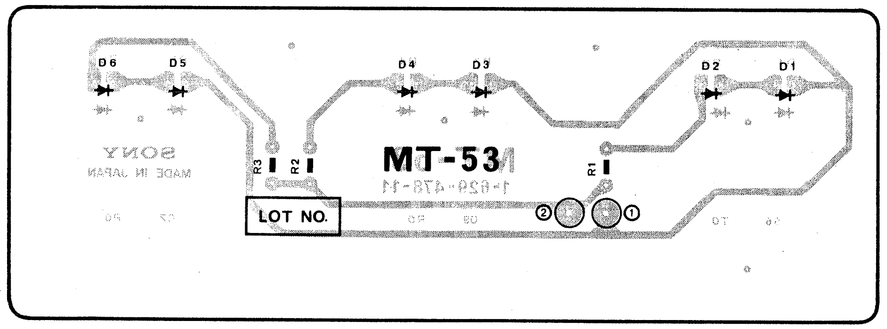
MC-28

–COMPONENT SIDE–
1-622-222-11
VO-9850
VO-9850P
VO-9800
VO-9800P


HN
-84
1-622-726-11
SONY
JAPAN

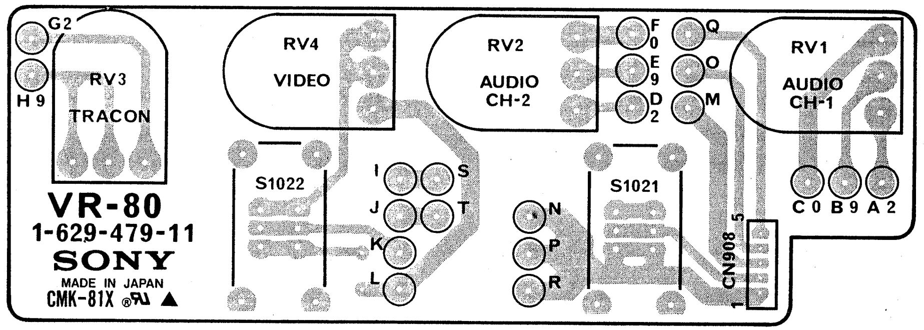
HN-84

–COMPONENT SIDE–
1-622-726-11
VO-9850
VO-9850P
VO-9800
VO-9800P


D6
D5
D4
D3
D2
D1
SONY
MADE IN JAPAN
R3
R2
MT-53
1-629-478-11
R1
LOT NO.

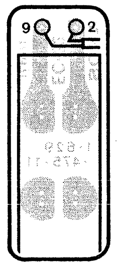
MT-53

–COMPONENT SIDE–
1-629-478-11
VO-9850
VO-9850P
VO-9800
VO-9800P


G2
H9
RV3
TRACON
RV4
VIDEO
RV2
AUDIO
CH-2
RV1
AUDIO
CH-1
F0
E9
D2
Q
O
M
S1022
S1021
I
J
K
L
S
T
N
P
R
C0
B9
A2
CN908
VR-80
1-629-479-11
SONY
MADE IN JAPAN
CMK-81X

VR-80

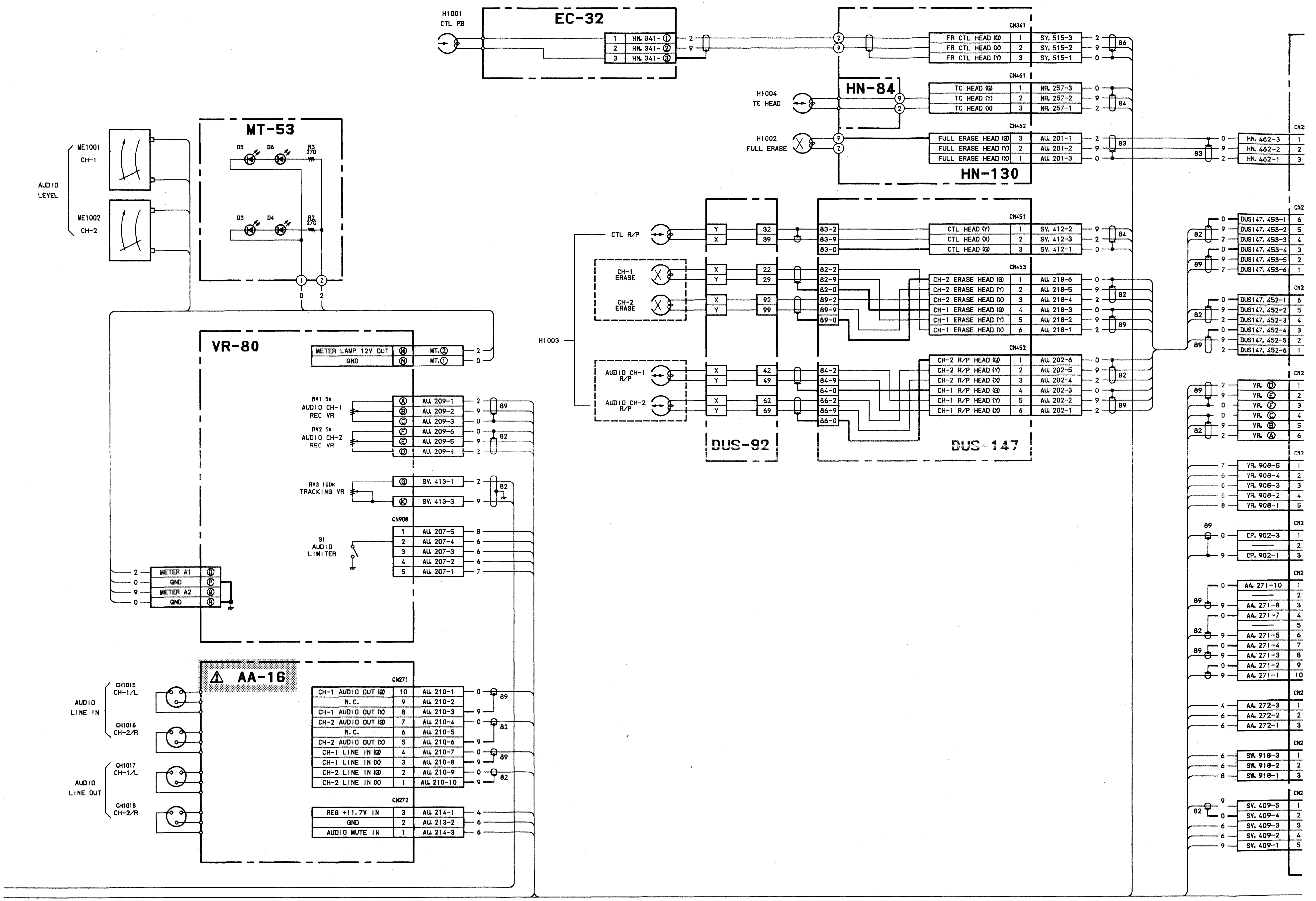
–COMPONENT SIDE–
1-629-479-11
VO-9850
VO-9850P
VO-9800
VO-9800P

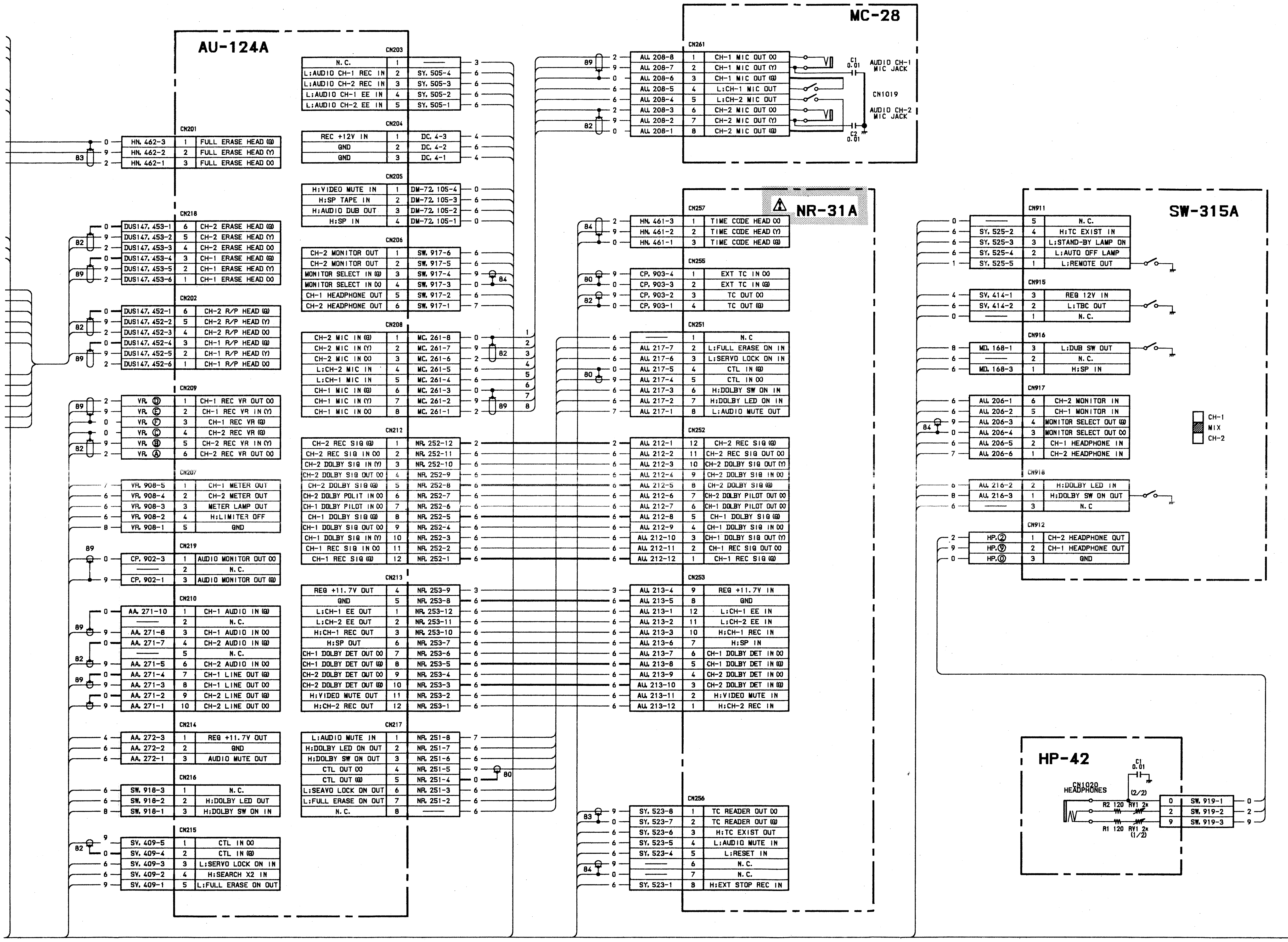

9
2
1-629-475-11

EC-32

–COMPONENT SIDE–
1-629-475-11
VO-9850
VO-9850P
VO-9800
VO-9800P

FRAME (2/3)


H1001 CTL PB
EC-32
HN-84
HN-130
H1004 TC HEAD
H1002 FULL ERASE
MT-53
AUDIO LEVEL
ME1001 CH-1
ME1002 CH-2
CTL R/P
CH-1 ERASE
CH-2 ERASE
H1003
AUDIO CH-1 R/P
AUDIO CH-2 R/P
DUS-92
DUS-147
VR-80
METER LAMP 12V OUT
GND
RV1 5k AUDIO CH-1 REC VR
RV2 5k AUDIO CH-2 REC VR
RV3 100k TRACKING VR
S1 AUDIO LIMITER
METER A1
METER A2
AA-16
AUDIO LINE IN
CN1015 CH-1/L
CN1016 CH-2/R
AUDIO LINE OUT
CN1017 CH-1/L
CN1018 CH-2/R
CH-1 AUDIO OUT (G)
CH-1 AUDIO OUT (X)
CH-2 AUDIO OUT (G)
CH-2 AUDIO OUT (X)
CH-1 LINE IN (G)
CH-1 LINE IN (X)
CH-2 LINE IN (G)
CH-2 LINE IN (X)
REG +11.7V IN
AUDIO MUTE IN
FR CTL HEAD (G)
FR CTL HEAD (X)
FR CTL HEAD (Y)
TC HEAD (G)
TC HEAD (Y)
TC HEAD (X)
FULL ERASE HEAD (G)
FULL ERASE HEAD (Y)
FULL ERASE HEAD (X)
CTL HEAD (Y)
CTL HEAD (X)
CTL HEAD (G)
CH-2 ERASE HEAD (G)
CH-2 ERASE HEAD (Y)
CH-2 ERASE HEAD (X)
CH-1 ERASE HEAD (G)
CH-1 ERASE HEAD (Y)
CH-1 ERASE HEAD (X)
CH-2 R/P HEAD (G)
CH-2 R/P HEAD (Y)
CH-2 R/P HEAD (X)
CH-1 R/P HEAD (G)
CH-1 R/P HEAD (Y)
CH-1 R/P HEAD (X)

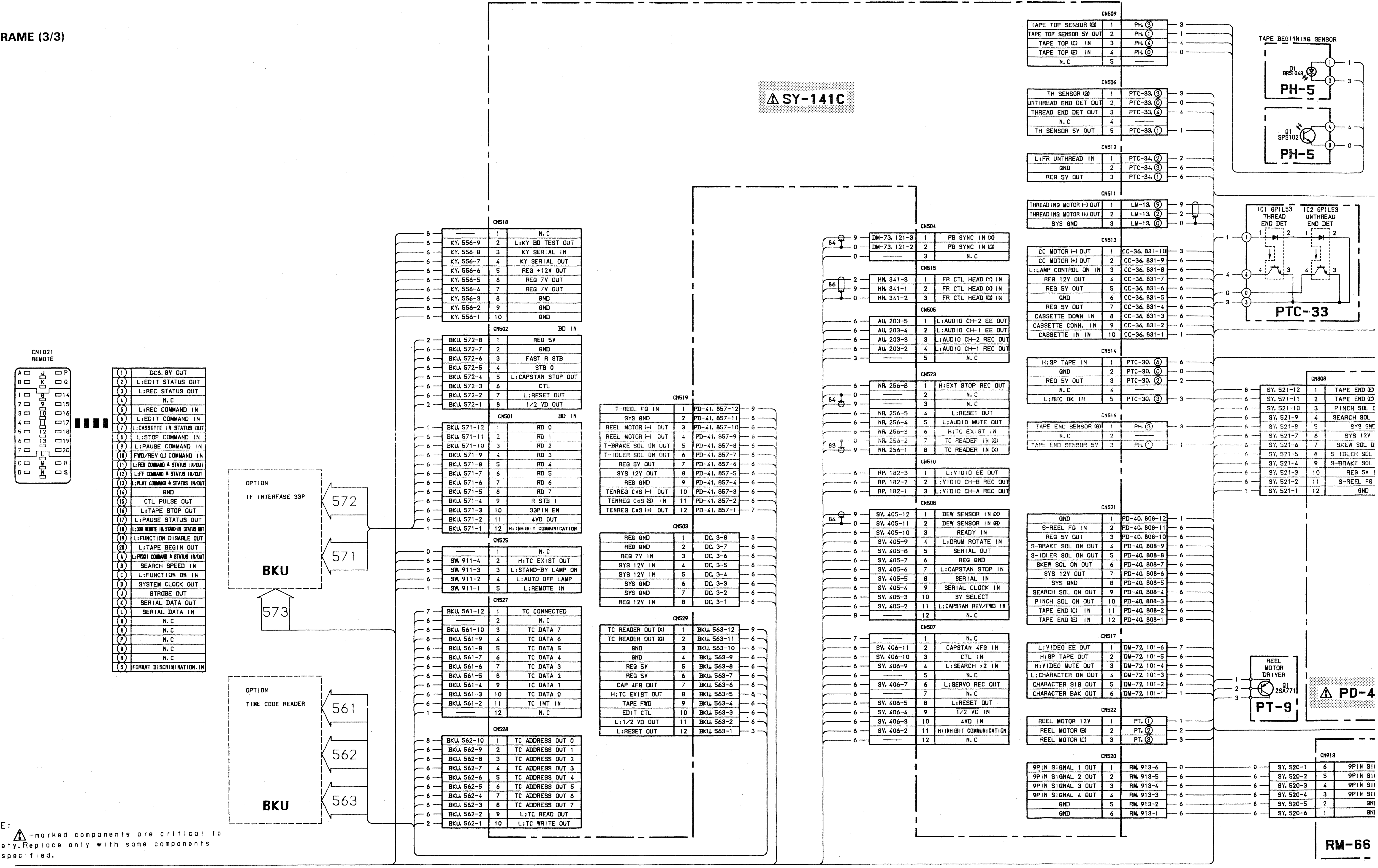

AU-124A
CN201
CN218
CN202
CN209
CN207
CN219
CN210
CN214
CN216
CN215
CN203
CN204
CN205
CN206
CN208
CN212
CN213
CN217
MC-28
CN261
AUDIO CH-1 MIC JACK
CN1019
AUDIO CH-2 MIC JACK
NR-31A
CN257
CN255
CN251
CN252
CN253
CN256
SW-315A
CN911
CN915
CN916
CN917
CN918
CN912
CH-1
MIX
CH-2
HP-42
CN1020 HEADPHONES

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

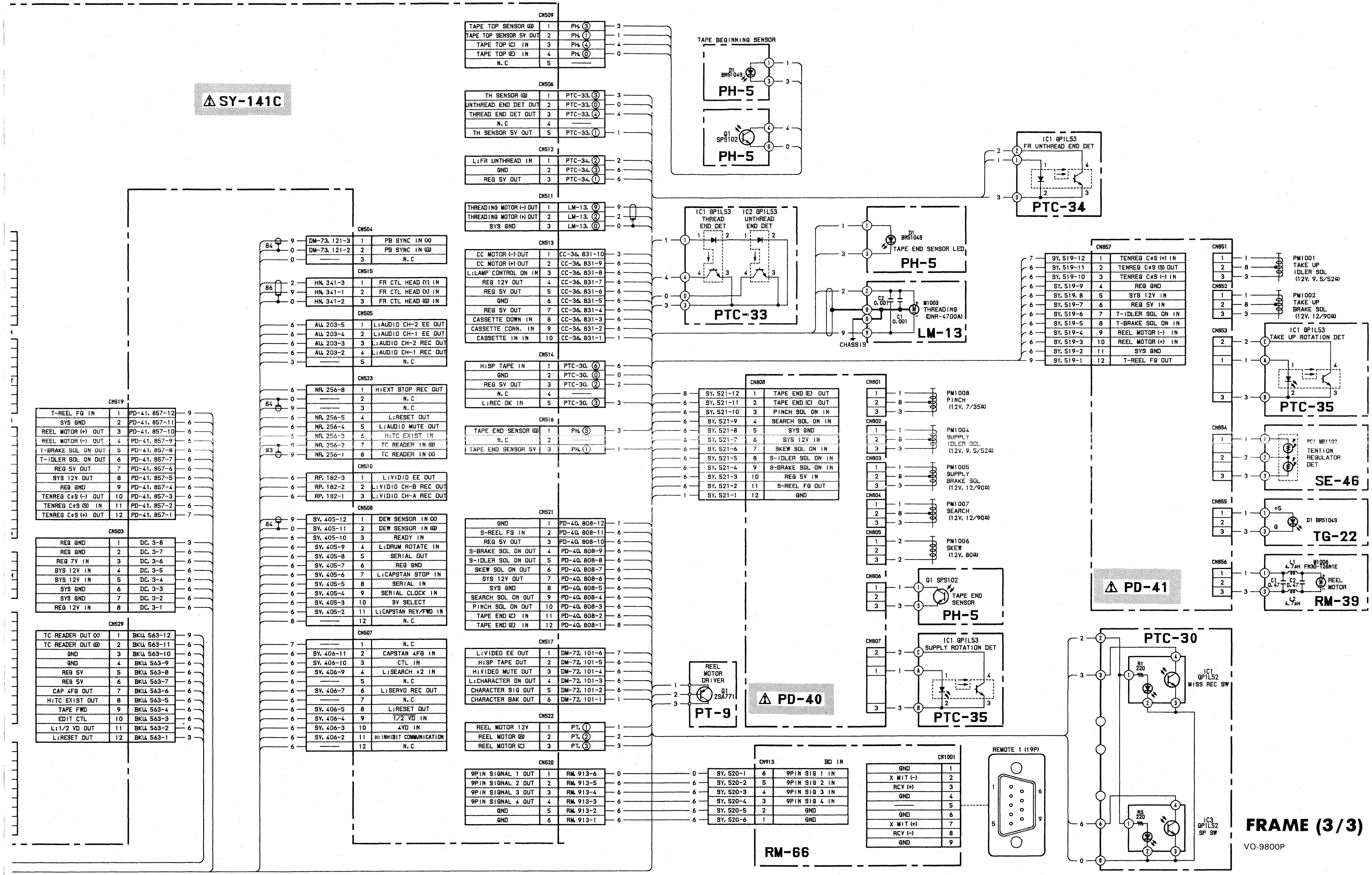
FRAME (2/3)

VO-9800P

FRAME (3/3)


SY-141C
CN1021
REMOTE
OPTION
IF INTERFASE 33P
BKU
572
571
573
OPTION
TIME CODE READER
BKU
561
562
563
CN518
CN502
BD IN
CN501
BD IN
CN525
CN527
CN528
CN519
CN503
CN529
CN504
CN515
CN505
CN523
CN510
CN508
CN507
CN509
CN506
CN512
CN511
CN513
CN514
CN516
CN521
CN517
CN522
CN520
TAPE BEGINNING SENSOR
D1
BR51049
PH-5
Q1
SPS102
PH-5
IC1 GP1L53
THREAD
END DET
IC2 GP1L53
UNTHREAD
END DET
PTC-33
CN808
REEL
MOTOR
DRIVER
Q1
2SA771
PT-9
PD-4
CN913
RM-66

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

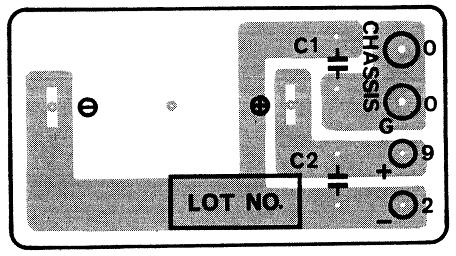


⚠ SY-141C
CN509
TAPE TOP SENSOR (G) 1 PH-③
TAPE TOP SENSOR 5V OUT 2 PH-①
TAPE TOP (C) IN 3 PH-④
TAPE TOP (E) IN 4 PH-⓪
N.C 5
CN506
TH SENSOR (G) 1 PTC-33-③
UNTHREAD END DET OUT 2 PTC-33-⓪
THREAD END DET OUT 3 PTC-33-④
N.C 4
TH SENSOR 5V OUT 5 PTC-33-①
CN512
L;FR UNTHREAD IN 1 PTC-34-②
GND 2 PTC-34-③
REG 5V OUT 3 PTC-34-①
CN511
THREADING MOTOR (-) OUT 1 LM-13-⑨
THREADING MOTOR (+) OUT 2 LM-13-②
SYS GND 3 LM-13-⓪
CN513
CC MOTOR (-) OUT 1 CC-36-831-10
CC MOTOR (+) OUT 2 CC-36-831-9
L;LAMP CONTROL ON IN 3 CC-36-831-8
REG 12V OUT 4 CC-36-831-7
REG 5V OUT 5 CC-36-831-6
GND 6 CC-36-831-5
REG 5V OUT 7 CC-36-831-4
CASSETTE DOWN IN 8 CC-36-831-3
CASSETTE CONN. IN 9 CC-36-831-2
CASSETTE IN IN 10 CC-36-831-1
CN514
H;SP TAPE IN 1 PTC-30-⑥
GND 2 PTC-30-⓪
REG 5V OUT 3 PTC-30-②
N.C 4
L;REC OK IN 5 PTC-30-③
CN516
TAPE END SENSOR (G) 1 PH-③
N.C 2
TAPE END SENSOR 5V 3 PH-①
CN504
DM-73-121-3 1 PB SYNC IN (Y)
DM-73-121-2 2 PB SYNC IN (G)
3 N.C
CN515
HN-341-3 1 FR CTL HEAD (Y) IN
HN-341-1 2 FR CTL HEAD (X) IN
HN-341-2 3 FR CTL HEAD (G) IN
CN505
AU-203-5 1 L;AUDIO CH-2 EE OUT
AU-203-4 2 L;AUDIO CH-1 EE OUT
AU-203-3 3 L;AUDIO CH-2 REC OUT
AU-203-2 4 L;AUDIO CH-1 REC OUT
5 N.C
CN523
NR-256-8 1 H;EXT STOP REC OUT
2 N.C
3 N.C
NR-256-5 4 L;RESET OUT
NR-256-4 5 L;AUDIO MUTE OUT
NR-256-3 6 H;TC EXIST IN
NR-256-2 7 TC READER IN (G)
NR-256-1 8 TC READER IN (X)
CN510
RP-182-3 1 L;VIDIO EE OUT
RP-182-2 2 L;VIDIO CH-B REC OUT
RP-182-1 3 L;VIDIO CH-A REC OUT
CN508
SY-405-12 1 DEW SENSOR IN (X)
SY-405-11 2 DEW SENSOR IN (G)
SY-405-10 3 READY IN
SY-405-9 4 L;DRUM ROTATE IN
SY-405-8 5 SERIAL OUT
SY-405-7 6 REG GND
SY-405-6 7 L;CAPSTAN STOP IN
SY-405-5 8 SERIAL IN
SY-405-4 9 SERIAL CLOCK IN
SY-405-3 10 8V SELECT
SY-405-2 11 L;CAPSTAN REV/FWD IN
12 N.C
CN507
1 N.C
SY-406-11 2 CAPSTAN 4FG IN
SY-406-10 3 CTL IN
SY-406-9 4 L;SEARCH ×2 IN
5 N.C
SY-406-7 6 L;SERVO REC OUT
7 N.C
SY-406-5 8 L;RESET OUT
SY-406-4 9 1/2 VD IN
SY-406-3 10 4VD IN
SY-406-2 11 H;INHIBIT COMMUNICATION
12 N.C
CN519
T-REEL FG IN 1 PD-41-857-12
SYS GND 2 PD-41-857-11
REEL MOTOR (+) OUT 3 PD-41-857-10
REEL MOTOR (-) OUT 4 PD-41-857-9
T-BRAKE SOL ON OUT 5 PD-41-857-8
T-IDLER SOL ON OUT 6 PD-41-857-7
REG 5V OUT 7 PD-41-857-6
SYS 12V OUT 8 PD-41-857-5
REG GND 9 PD-41-857-4
TENREG CθS (-) OUT 10 PD-41-857-3
TENREG CθS (S) IN 11 PD-41-857-2
TENREG CθS (+) OUT 12 PD-41-857-1
CN503
REG GND 1 DC-3-8
REG GND 2 DC-3-7
REG 7V IN 3 DC-3-6
SYS 12V IN 4 DC-3-5
SYS 12V IN 5 DC-3-4
SYS GND 6 DC-3-3
SYS GND 7 DC-3-2
REG 12V IN 8 DC-3-1
CN529
TC READER OUT (X) 1 BKU-563-12
TC READER OUT (G) 2 BKU-563-11
GND 3 BKU-563-10
GND 4 BKU-563-9
REG 5V 5 BKU-563-8
REG 5V 6 BKU-563-7
CAP 4FG OUT 7 BKU-563-6
H;TC EXIST OUT 8 BKU-563-5
TAPE FWD 9 BKU-563-4
EDIT CTL 10 BKU-563-3
L;1/2 VD OUT 11 BKU-563-2
L;RESET OUT 12 BKU-563-1
CN521
GND 1 PD-40-808-12
S-REEL FG IN 2 PD-40-808-11
REG 5V OUT 3 PD-40-808-10
S-BRAKE SOL ON OUT 4 PD-40-808-9
S-IDLER SOL ON OUT 5 PD-40-808-8
SKEW SOL ON OUT 6 PD-40-808-7
SYS 12V OUT 7 PD-40-808-6
SYS GND 8 PD-40-808-5
SEARCH SOL ON OUT 9 PD-40-808-4
PINCH SOL ON OUT 10 PD-40-808-3
TAPE END (C) IN 11 PD-40-808-2
TAPE END (E) IN 12 PD-40-808-1
CN517
L;VIDEO EE OUT 1 DM-72-101-6
H;SP TAPE OUT 2 DM-72-101-5
H;VIDEO MUTE OUT 3 DM-72-101-4
L;CHARACTER ON OUT 4 DM-72-101-3
CHARACTER SIG OUT 5 DM-72-101-2
CHARACTER BAK OUT 6 DM-72-101-1
CN522
REEL MOTOR 12V 1 PT-①
REEL MOTOR (B) 2 PT-②
REEL MOTOR (C) 3 PT-③
CN520
9PIN SIGNAL 1 OUT 1 RM-913-6
9PIN SIGNAL 2 OUT 2 RM-913-5
9PIN SIGNAL 3 OUT 3 RM-913-4
9PIN SIGNAL 4 OUT 4 RM-913-3
GND 5 RM-913-2
GND 6 RM-913-1
84
86
83
TAPE BEGINNING SENSOR
D1 BR5104S
PH-5
Q1 SPS102
PH-5
IC1 GP1L53 FR UNTHREAD END DET
PTC-34
IC1 GP1L53 THREAD END DET
IC2 GP1L53 UNTHREAD END DET
PTC-33
D1 BR5104S
TAPE END SENSOR LED
PH-5
C2 0.001
C1 0.001
M1003 THREADING (DNR-4700A)
CHASSIS
LM-13
CN857
SY-519-12 1 TENREG CθS (+) IN
SY-519-11 2 TENREG CθS (S) OUT
SY-519-10 3 TENREG CθS (-) IN
SY-519-9 4 REG GND
SY-519-8 5 SYS 12V IN
SY-519-7 6 REG 5V IN
SY-519-6 7 T-IDLER SOL ON IN
SY-519-5 8 T-BRAKE SOL ON IN
SY-519-4 9 REEL MOTOR (-) IN
SY-519-3 10 REEL MOTOR (+) IN
SY-519-2 11 SYS GND
SY-519-1 12 T-REEL FG OUT
CN851
PM1001 TAKE UP IDLER SOL (12V, 9.5/52Ω)
CN852
PM1002 TAKE UP BRAKE SOL (12V, 12/90Ω)
CN853
IC1 GP1L53 TAKE UP ROTATION DET
PTC-35
CN854
PC1 MB1102 TENTION REGULATOR DET
SE-46
CN855
+5
D1 BR5104S
TG-22
CN856
L1 4.7μH FM30-126N1E
C1 0.47
C2 0.47
M1006 REEL MOTOR
L2 4.7μH
RM-39
⚠ PD-41
CN808
SY-521-12 1 TAPE END (E) OUT
SY-521-11 2 TAPE END (C) OUT
SY-521-10 3 PINCH SOL ON IN
SY-521-9 4 SEARCH SOL ON IN
SY-521-8 5 SYS GND
SY-521-7 6 SYS 12V IN
SY-521-6 7 SKEW SOL ON IN
SY-521-5 8 S-IDLER SOL ON IN
SY-521-4 9 S-BRAKE SOL ON IN
SY-521-3 10 REG 5V IN
SY-521-2 11 S-REEL FG OUT
SY-521-1 12 GND
CN801
PM1008 PINCH (12V, 7/35Ω)
CN802
PM1004 SUPPLY IDLER SOL (12V, 9.5/52Ω)
CN803
PM1005 SUPPLY BRAKE SOL (12V, 12/90Ω)
CN804
PM1007 SEARCH (12V, 12/90Ω)
CN805
PM1006 SKEW (12V, 80Ω)
CN806
Q1 SPS102
TAPE END SENSOR
PH-5
CN807
IC1 GP1L53 SUPPLY ROTATION DET
PTC-35
⚠ PD-40
REEL MOTOR DRIVER
Q1 2SA771
PT-9
PTC-30
R1 220
IC1 GP1L52 MISS REC SW
R3 220
IC3 GP1L52 SP SW
CN913 BD IN
SY-520-1 6 9PIN SIG 1 IN
SY-520-2 5 9PIN SIG 2 IN
SY-520-3 4 9PIN SIG 3 IN
SY-520-4 3 9PIN SIG 4 IN
SY-520-5 2 GND
SY-520-6 1 GND
RM-66
CN1001
GND 1
X MIT (-) 2
RCV (+) 3
GND 4
5
GND 6
X MIT (+) 7
RCV (-) 8
GND 9
REMOTE 1 (9P)

FRAME (3/3)

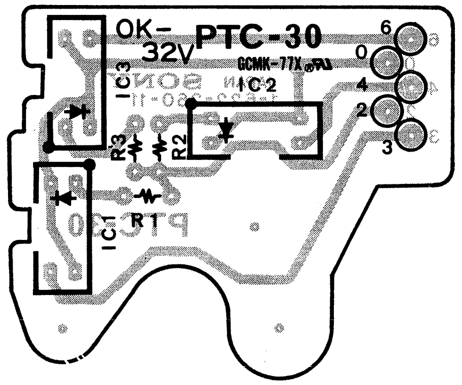
VO-9800P

LM-13: THREADING MOTOR
PT-9: REEL MOTOR DRIVER
PTC-30: SP, MISS REC DETECTOR
RM-66: REMOTE CONTROL


C1
CHASSIS
C2
LOT NO.
⊖
⊕
+
G
−
0
0
9
2

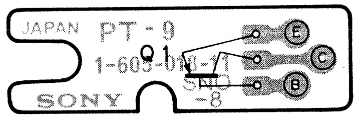
LM-13

—COMPONENT SIDE—
1-618-600-11
VO-9850
VO-9850P
VO-9800
VO-9800P


OK-32V
PTC-30
GCMK-77X
IC2
IC3
IC1
R3
R2
R1
6
0
4
2
3

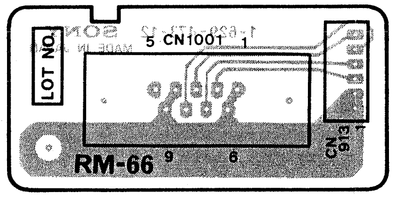
PTC-30

—COMPONENT SIDE—
1-622-260-11
VO-9850
VO-9850P
VO-9800
VO-9800P


JAPAN
PT-9
Q1
1-605-018-11
SONY
-8
E
C
B

PT-9

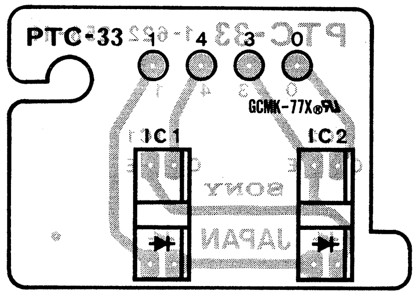
—COMPONENT SIDE—
1-605-018-11
VO-9850
VO-9850P
VO-9800
VO-9800P


LOT NO.
5 CN1001 1
RM-66
9
6
CN913

RM-66

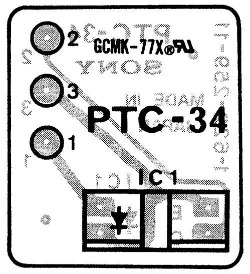
—COMPONENT SIDE—
1-629-473-12
VO-9850
VO-9850P
VO-9800
VO-9800P

PTC-33: UNTHREADEND DETECTOR
PTC-34: FR STOP DETECTOR


PTC-33
1
4
3
0
GCMK-77X
IC1
IC2

PTC-33

—COMPONENT SIDE—
1-622-258-11
VO-9850
VO-9850P
VO-9800
VO-9800P


2
GCMK-77X
3
1
PTC-34
IC1

PTC-34

—COMPONENT SIDE—
1-622-259-11
VO-9850
VO-9850P
VO-9800
VO-9800P

SECTION 16
SPARE PARTS AND FIXTURE

16-1. PARTS INFORMATION

(1) The ⚠ marked components are critical to safety.
Replace only with the same components as specified.

(2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "improved parts and/or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.

(5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use. (Example) Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

16-2. EXPLODED VIEW

. Exploded views are composed of the following blocks.

(1) Reel Chassis (1), Supply Side
    S Reel Table
    S Tension Regulator Arm
    Search Solenoid
    S Main Brake
    Reel Motor
(2) Reel Chassis (2), Take-up Side
    T Reel Table
    FF/REW Idler
    T Main brake
    T Tension Regulator Arm
    R Brake
(3) Reel Chassis (3), Back Side
    S Idler Solenoid
    T Idler Solenoid
    FF/REW Idler Pulley
    S Brake Solenoid
    T Brake Solenoid
(4) Threading Ring Block
    Threading Ring
    Gear Box
    T Correction Guide
    Tape Beginning Sensor
    FR Detector
(5) Threading Arm
    T Drawer Arm
    S Drawer Arm
    S Drawer Roller
    Drawer Lever
(6) Drum and Capstan Blocks
    Head Drum
    Capstan Motor
    Audio/CTL Head
    Tape Guides

(7) Erase Head Base
  - Erase Head Base
  - S Guard

(8) Pinch Lever and Pinch Solenoid Blocks
  - Pinch Lever
  - Pinch Roller Pre-set Cam
  - Pinch Solenoid

(9) Cassette-up Compartment Block

(10) Function Control
  - Function Control Board
  - Search Dial

(11) Front Panel and Key Panel Blocks

(12) Chassis Block (1), Left Side
  - Printed Circuit Boards

(13) Chassis Block (2), Top
  - Printed Circuit Boards

(14) Level Control

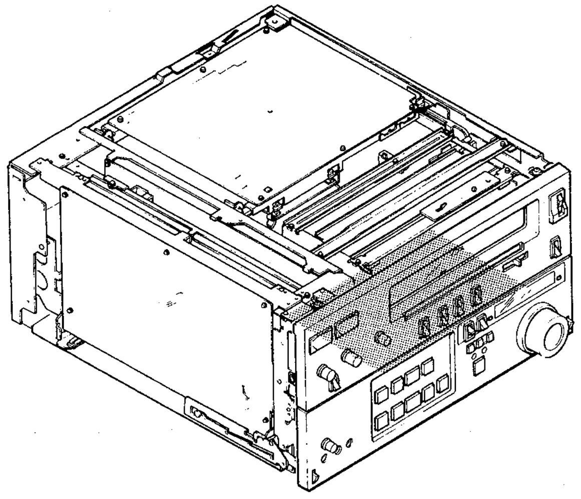
(15) Chassis Block (3), Right Side and Rear
  - Printed Circuit Boards
  - Switching Regulator

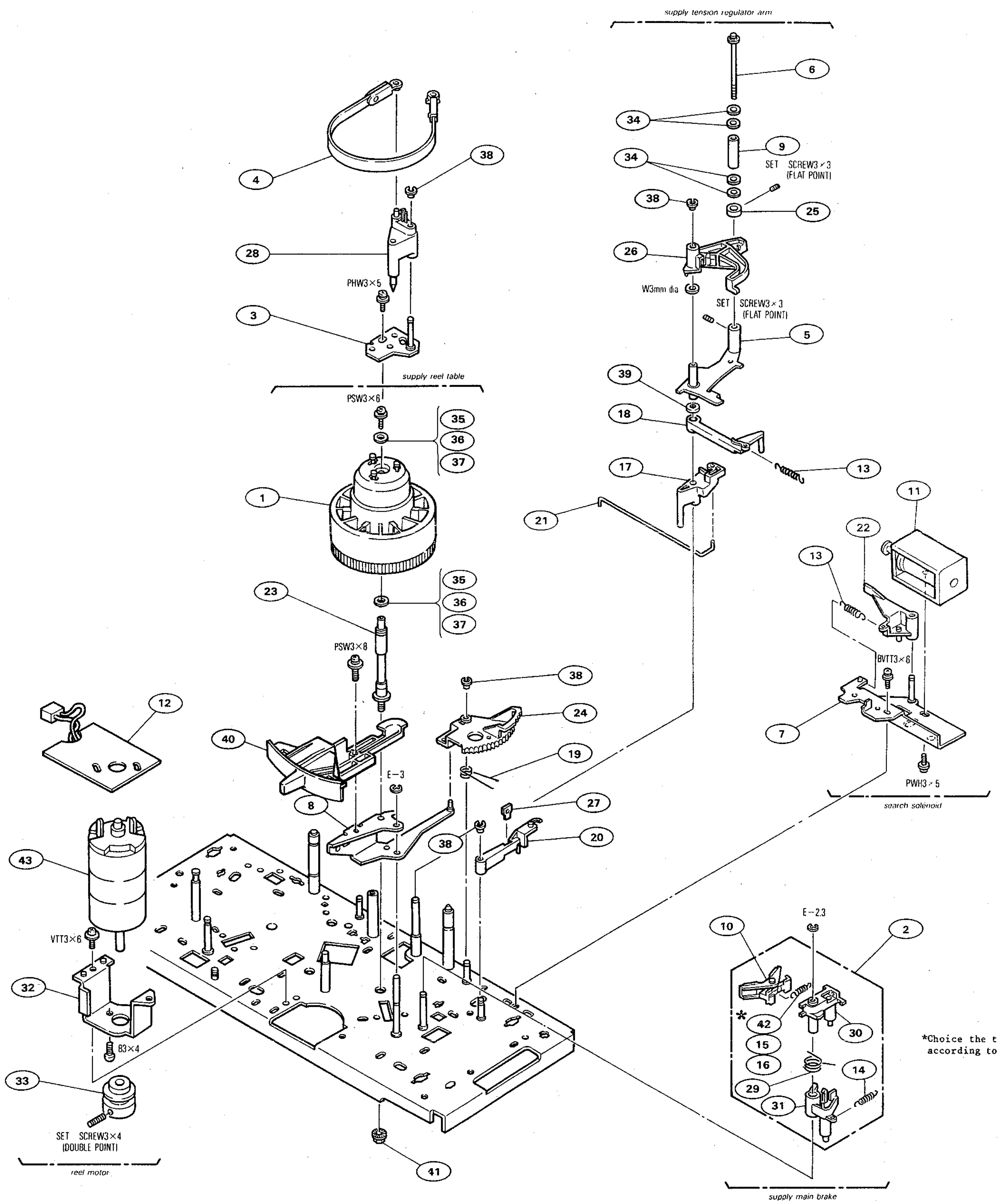
(16) Connector Panel

(17) Chassis Block (4), Bottom
  - Printed Circuit Boards

(18) Ornamental Panel Block

REEL CHASSIS (1), SUPPLY SIDE

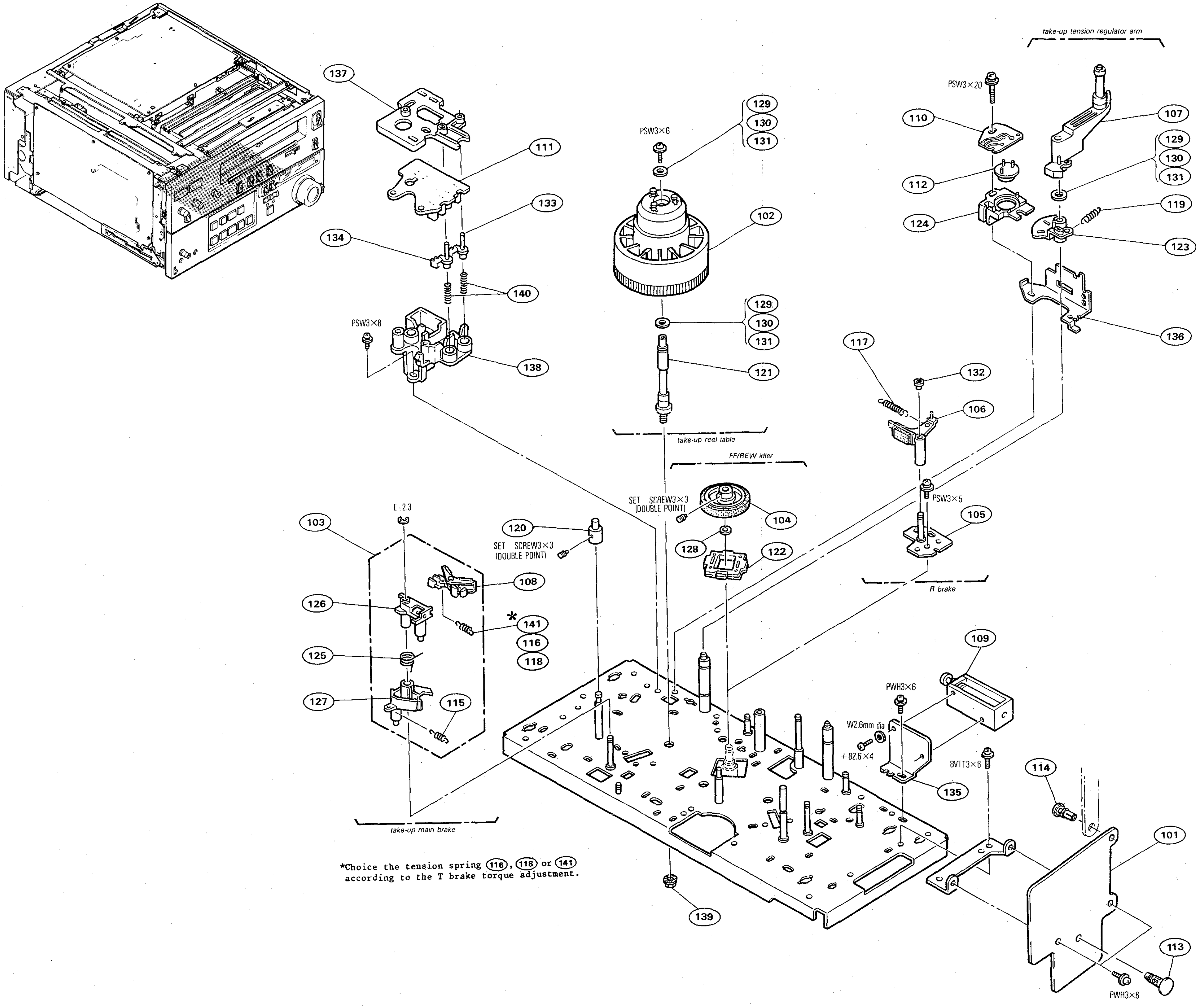



supply tension regulator arm
SET SCREW3×3 (FLAT POINT)
W3mm dia
SET SCREW3×3 (FLAT POINT)
PHW3×5
supply reel table
PSW3×6
PSW3×8
E-3
BVTT3×6
PWH3×5
search solenoid
VTT3×6
B3×4
SET SCREW3×4 (DOUBLE POINT)
reel motor
E-23
supply main brake

*Choice the tension spring ⑮, ⑯ or ㊷ according to the S brake torque adjustment.

No.	Part No.	SP	Description
1	A-6739-017-A	s	TABLE ASSY, REEL
2	A-6741-038-B	s	BRAKE ASSY, MAIN
3	X-3668-706-0	o	BASE ASSY, S TENSION REGULATOR
4	X-3668-707-0	s	BAND ASSY, S TENSION REGULATOR
5	X-3668-708-0	s	ARM(A)ASSY, S TENSION REGULATOR
6	X-3668-709-0	s	SHAFT (1) ASSY, ROLLER
7	X-3668-717-0	o	BASE ASSY, SEARCH
8	X-3668-725-0	o	ARM (C) ASSY, SKEW
9	X-3668-727-0	s	GUIDE ASS'Y, TAPE
10	X-3668-749-0	s	HOLDER ASSY, LINING
11	1-454-417-41	s	SOLENOID, PLUNGER
12	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
13	3-534-238-XX	s	SPRING, TENSION (23T)
14	3-535-369-XX	s	SPRING, TENSION (12T)
15	3-548-124-00	s	SPRING, TENSION
16	3-555-210-00	s	SPRING, TENSION
17	3-668-787-02	s	ARM, S DETECTION
18	3-668-794-00	o	ARM (A), SKEW
19	3-668-795-00	s	SPRING
20	3-668-797-00	o	ARM, SKEW LOCK
21	3-668-804-00	s	LINK, DETECTION TENSION
22	3-668-808-00	s	ARM, FWD, SEARCH
23	3-668-827-00	o	SHAFT (S), REEL
24	3-668-835-00	s	ARM (B), SKEW
25	3-668-874-00	s	FLANGE (1), LOWER
26	3-668-936-00	s	ARM (B), S TENSION REGULATOR
27	3-668-937-00	s	CLAW, SKEW LOCK
28	3-668-939-00	o	ARM, BAND LOCK
29	3-668-966-00	s	SPRING
30	3-668-970-00	o	ARM, BRAKE
31	3-668-971-00	o	ARM, BRAKE RELEASE
32	3-672-743-01	o	BRACKET, MOTOR
33	3-672-744-01	s	PULLEY (R), MOTOR
34	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
35	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
36	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
37	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
38	3-703-074-00	s	CAP 3, SHAFT
39	3-718-389-01	s	WASHER (DIA. 3), SUS
40	3-733-619-01	s	LEVER, SKEW
41	4-304-749-00	o	NUT, FLANGE
42	4-907-156-01	s	SPRING, TENSION
43	8-835-178-01	s	MOTOR, DC FN30-T26N1E

REEL CHASSIS (2), TAKE-UP SIDE


take-up tension regulator arm
PSW3×20
PSW3×6
PSW3×8
PSW3×5
PWH3×6
W2.6mm dia
+B2.6×4
BVTT3×6
E-2.3
SET SCREW3×3 (DOUBLE POINT)
take-up reel table
FF/REW idler
R brake
take-up main brake
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
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120
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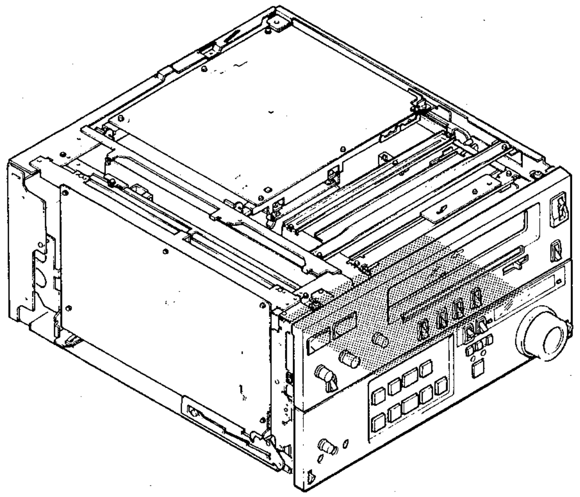
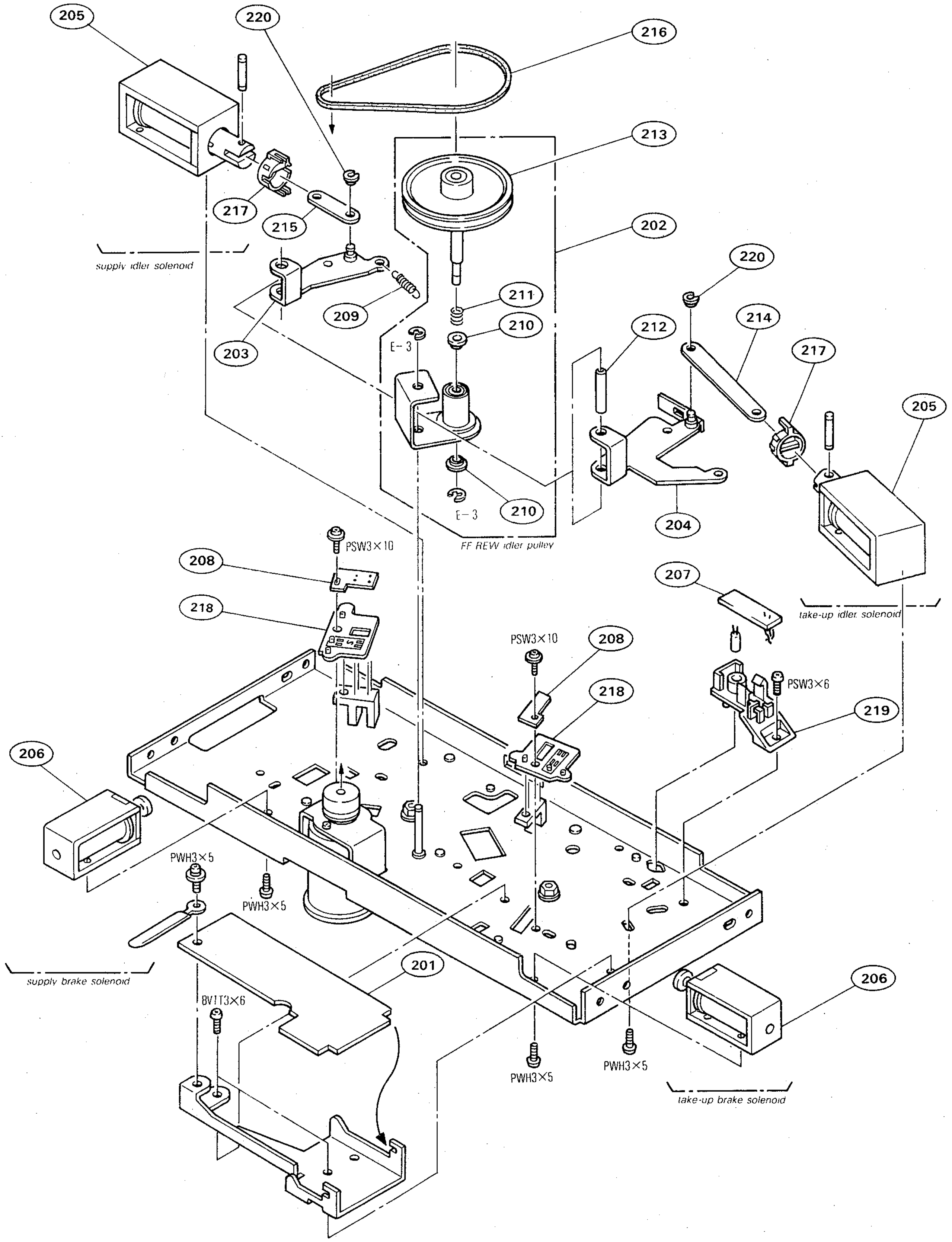
139
140
141
*

*Choice the tension spring ⑯, ⑱ or ㊶ according to the T brake torque adjustment.

No.	Part No.	SP	Description
101	⚠ A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
102	A-6739-017-A	s	TABLE ASS'Y, REEL
103	A-6741-038-B	s	BRAKE ASS'Y, MAIN
104	X-3646-026-0	s	IDLER ASS'Y, FF
105	X-3668-705-0	o	BASE ASS'Y, R BRAKE
106	X-3668-737-0	s	BRAKE ASS'Y, R
107	X-3668-738-0	s	ARM ASS'Y, T TENSION REGULATOR
108	X-3668-749-0	s	HOLDER ASS'Y, LINING
109	1-454-446-11	s	SOLENOID, PLUNGER
110	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
111	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
112	1-806-232-21	s	DETECTOR MB-1102/S.N
113	2-382-416-01	o	SUPPORT, PC
114	3-531-576-11	s	REVET
115	3-535-369-XX	s	SPRING, TENSION (12T)
116	3-548-124-00	s	SPRING, TENSION
117	3-549-861-00	s	SPRING, TENSION
118	3-555-210-00	s	SPRING, TENSION
119	3-642-427-00	s	SPRING, TENSION
120	3-668-031-00	o	RETAINER (UPPER), CASSETTE
121	3-668-766-00	o	SHAFT (T), REEL
122	3-668-780-00	o	CUSHION, IDLER
123	3-668-788-00	s	ARM, T DETECTION
124	3-668-789-00	o	HOLDER, BRIDGE, PHOTO
125	3-668-966-00	s	SPRING
126	3-668-970-00	o	ARM, BRAKE
127	3-668-971-00	o	ARM, BRAKE RELEASE
128	3-701-441-21	s	WASHER, POLY 4MM DIA., 0.50T
129	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
130	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
131	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
132	3-703-074-00	s	CAP 3, SHAFT
133	3-718-307-01	s	ACTUATOR, TRC
134	3-718-307-11	s	ACTUATOR, TRC
135	3-718-308-01	o	BRACKET, SK SOLENOID
136	3-718-326-01	o	STOPPER (SP)
137	3-718-342-01	o	TRC-BOX (UPPER)
138	3-718-343-01	o	TRC-BOX (LOWER)
139	4-304-749-00	o	NUT, FLANGE
140	4-858-779-00	s	SPRING, COMPRESSION
141	4-907-156-01	s	SPRING, TENSION

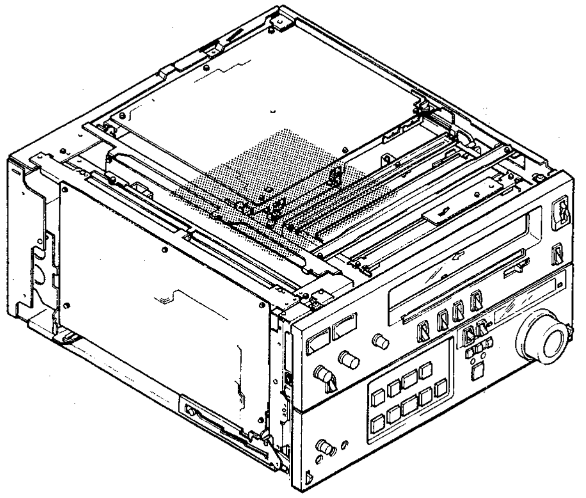
REEL CHASSIS (3), BACK SIDE

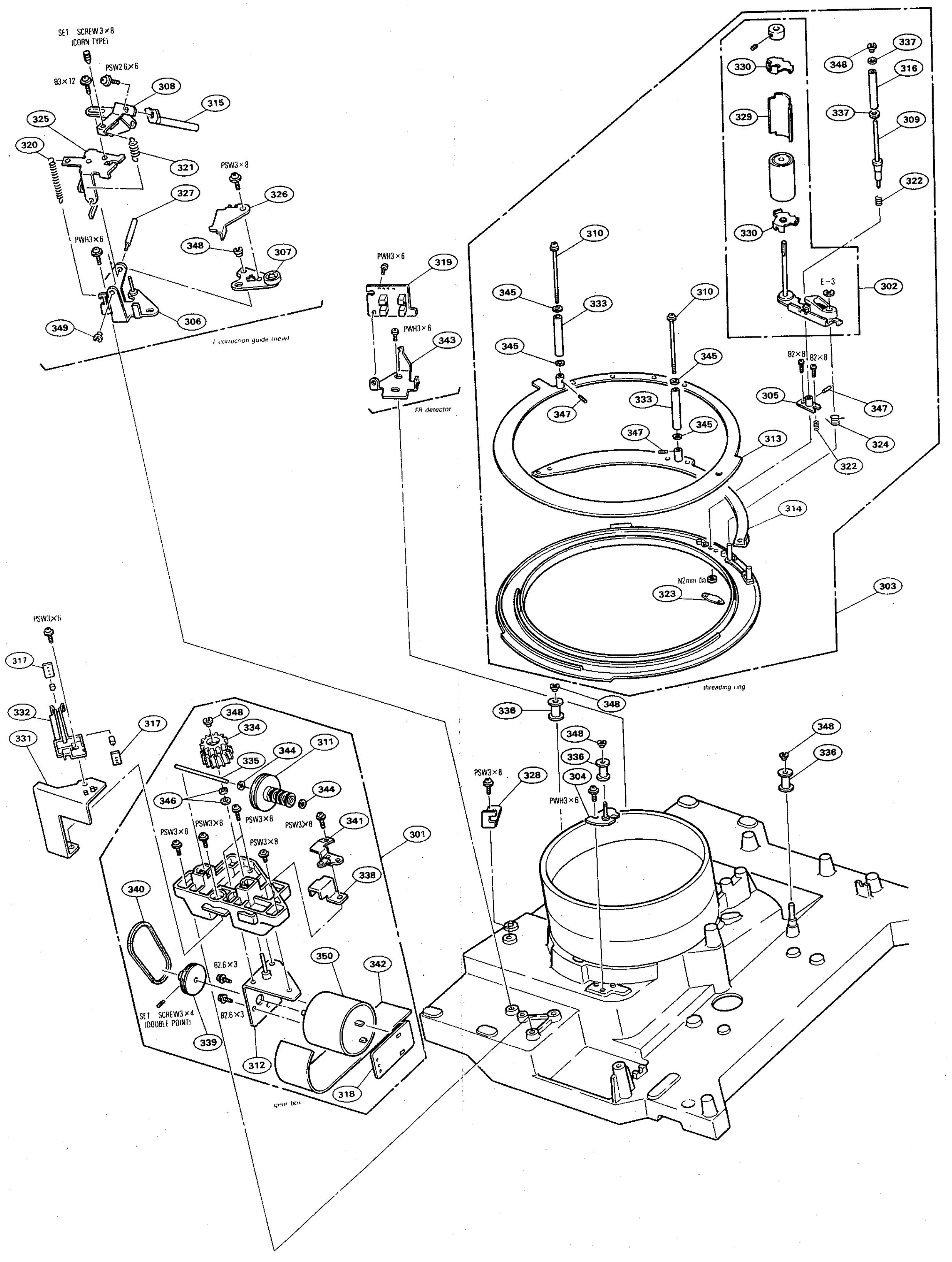



205
220
216
213
202
217
215
209
203
supply idler solenoid
211
210
E-3
212
220
214
217
205
204
210
E-3
FF REW idler pulley
PSW3×10
208
218
207
take-up idler solenoid
PSW3×10
208
218
PSW3×6
219
206
PWH3×5
PWH3×5
supply brake solenoid
201
BVTT3×6
206
PWH3×5
PWH3×5
take-up brake solenoid

No.	Part No.	SP	Description
201 ⚠	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
202	A-6740-069-B	s	PULLEY BLOCK, ASS'Y, IDLER
203	X-3668-703-0	o	LEVER ASS'Y, S
204	X-3668-704-0	o	LEVER ASS'Y, T
205	1-454-415-11	s	SOLENOID, PLUNGER
206	1-454-417-41	s	SOLENOID, PLUNGER
207	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
208	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
209	3-437-452-00	s	SPRING, TENSION
210	3-650-512-00	s	COLLAR, (A)
211	3-651-572-00	s	SPRING, COMPRESSION
212	3-668-048-11	o	SPACER (DIA. 4x20)
213	3-668-772-00	s	SHAFT, IDLER PULLEY
214	3-668-781-00	o	JOINT, T
215	3-668-782-00	o	JOINT, S
216	3-668-785-00	s	BELT (67x2)
217	3-668-826-00	s	RETAINER, PIN, SOLENOID
218	3-668-828-02	o	BRACKET, PS
219	3-672-752-01	o	HOLDER, LED
220	3-703-074-00	s	CAP 3, SHAFT

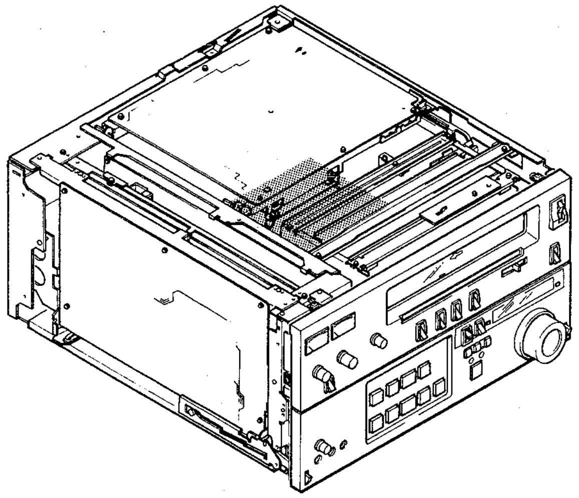
THREADING RING BLOCK

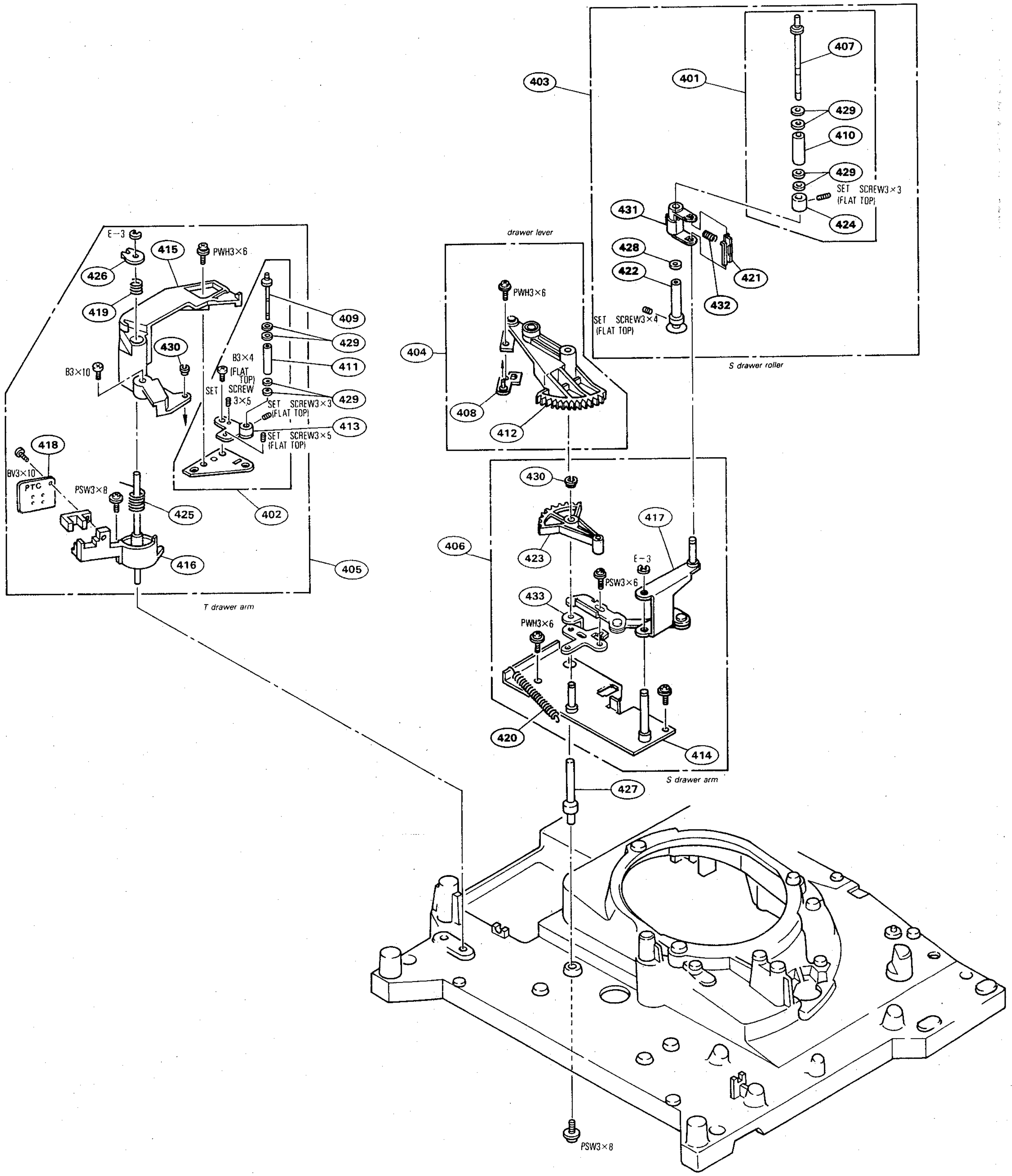



SET SCREW3×8 (CORN TYPE)
PSW2.6×6
B3×12
308
315
325
320
321
PSW3×8
327
326
348
307
PWH3×6
306
349
T correction guide (new)
PWH3×6
319
PWH3×6
343
FR detector
310
345
333
310
345
345
347
333
347
345
313
330
329
348
337
316
337
309
322
330
302
E-3
B2×8
B2×8
305
347
324
322
314
N2mm dia.
323
303
threading ring
336
348
348
336
304
328
PSW3×8
PWH3×6
348
336
PSW3×5
317
332
331
317
348
334
335
344
311
344
346
341
PSW3×8
PSW3×8
PSW3×8
PSW3×8
PSW3×8
301
338
340
350
342
B2.6×3
B2.6×3
SET SCREW3×4 (DOUBLE POINT)
339
312
318
gear box

No.	Part No.	SP	Description
301	A-6750-219-A	s	BOX BLOCK ASS'Y, GEAR
302	A-6750-223-A	s	PINCH ROLLER BLOCK ASS'Y
303	A-6750-238-A	s	RING BLOCK ASSY, MAIN
304	X-3668-719-0	o	ROLLER ASS'Y, RING
305	X-3668-720-0	o	BASE ASS'Y, ROLLER, PRECEDING
306	X-3668-721-0	o	CHASSIS ASS'Y, GUIDE
307	X-3668-722-0	s	LOCKER ASS'Y, FR
308	X-3668-723-2	o	ARM ASS'Y, GUIDE, T CORRECTION
309	X-3668-724-3	s	SHAFT ASS'Y, ROLLER, PRECEDING
310	X-3668-733-0	s	SHAFT ASS'Y, SR GUIDE
311	X-3668-743-0	s	PULLEY ASS'Y, WORM
312	X-3672-704-1	o	BRACKET ASS'Y, MOTOR
313	X-3672-710-1	o	RING (UPPER) ASS'Y, SUB
314	X-3672-711-1	o	RING (LOWER) ASS'Y, SUB
315	X-3672-718-2	s	SHAFT ASS'Y, GUIDE
316	X-3718-303-1	s	GUIDE ASS'Y, (T), TAPE
317	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
318	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
319	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
320	3-143-067-00	s	SPRING, TENSION
321	3-437-289-00	s	SPRING, TENSION
322	3-634-196-00	s	SPRING
323	3-668-743-00	o	NUT, PLATE, ROLLER, PRECEDING
324	3-668-745-00	s	SPRING
325	3-668-749-02	o	ARM (A), GUIDE, T CORRECTION
326	3-668-753-00	o	PLATE, ADJUSTMENT, FR LOCKER
327	3-668-754-00	o	SHAFT, GUIDE ARM, T CORRECTION
328	3-668-755-00	o	PLATE, STOPPER SR
329	3-668-888-00	o	COVER, PINCH
330	3-668-889-00	o	CAP, PINCH ROLLER
331	3-668-900-00	o	BRACKET, T SENSOR
332	3-668-901-00	s	HOLDER, T PHOTO
333	3-668-919-00	s	ROLLER, SR GUIDE
334	3-668-947-00	s	PINION, L
335	3-668-948-00	o	SHAFT WORM
336	3-668-963-03	s	ROLLER, RING
337	3-669-926-01	s	WASHER (3), THRUST
338	3-669-960-00	o	RETAINER, SHAFT
339	3-672-736-01	s	PULLEY, LM
340	3-672-737-01	s	BELT SQUARE
341	3-672-738-01	o	PLATE GROUND SLED
342	3-672-739-01	o	BELT, LM SHIELD
343	3-672-790-01	o	BRAKET, FR DETECTION
344	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.50T
345	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.25T
346	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
347	3-701-505-00	s	SET SCREW, DUBLE POINT 3x3
348	3-703-074-00	s	CAP 3, SHAFT
349	3-703-075-00	s	CAP 2, SHAFT
350	8-835-055-01	s	MOTOR, DC (DNR-4700A)

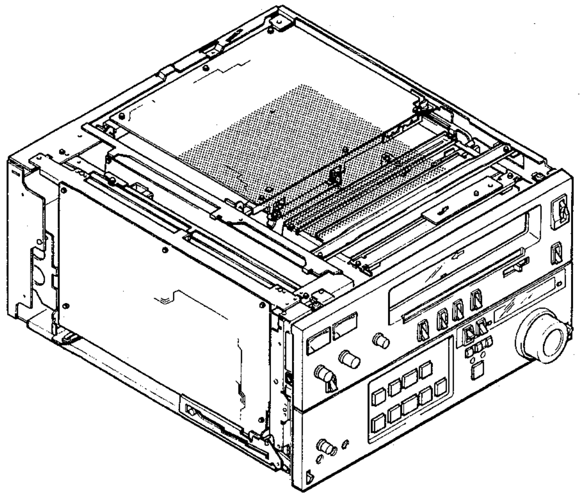
THREADING ARM

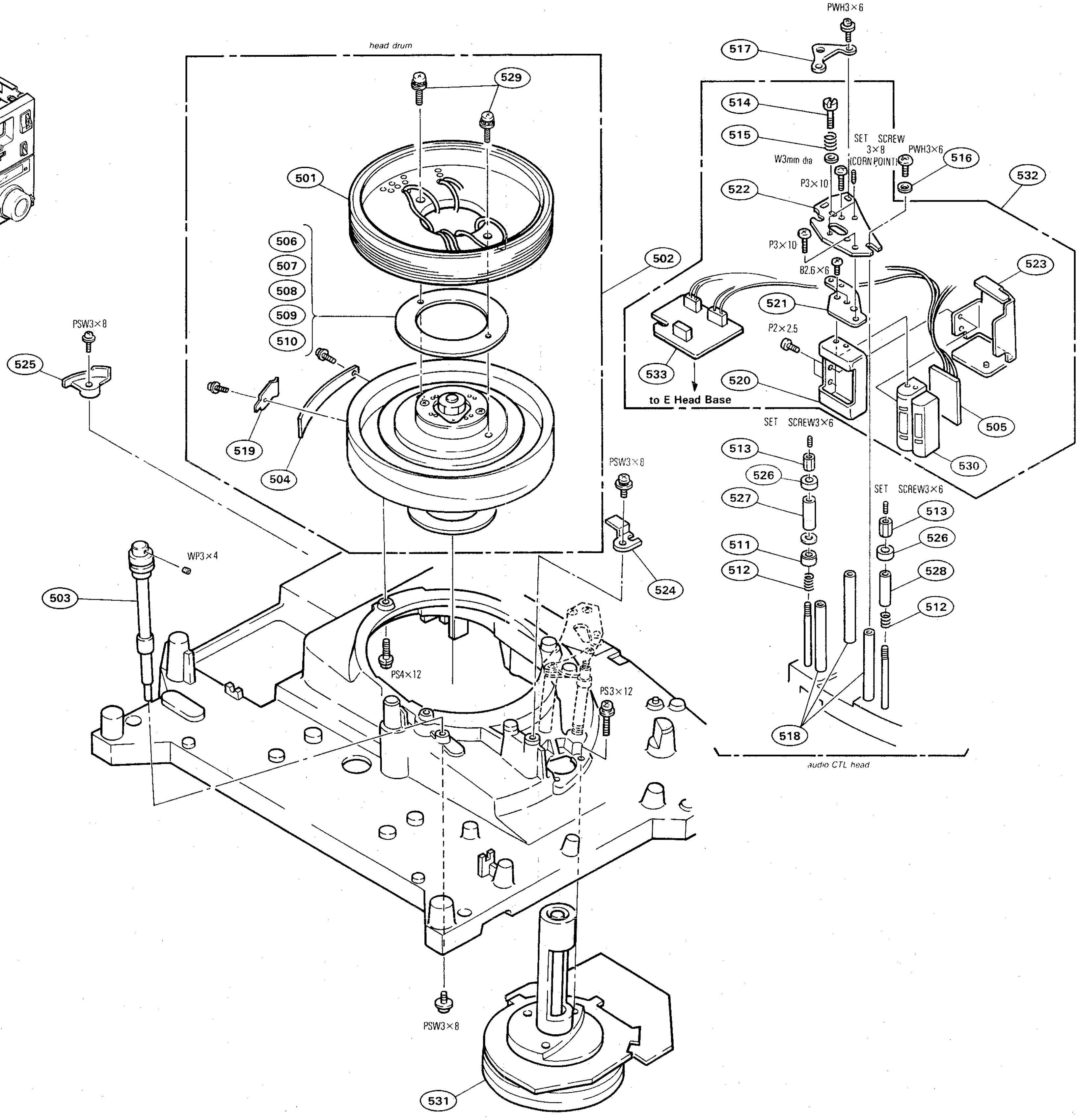



403
401
407
429
410
429
SET SCREW3×3 (FLAT TOP)
424
431
428
422
421
432
SET SCREW3×4 (FLAT TOP)
S drawer roller
drawer lever
PWH3×6
404
408
412
E-3
415
PWH3×6
426
419
409
429
430
B3×4 (FLAT TOP)
411
B3×10
SET SCREW 3×5
SET SCREW3×3 (FLAT TOP)
429
413
SET SCREW3×5 (FLAT TOP)
418
BV3×10
PTC
PSW3×8
425
402
416
405
T drawer arm
406
430
417
423
E-3
PSW3×6
433
PWH3×6
420
414
S drawer arm
427
PSW3×8

No.	Part No.	SP	Description
401	A-6746-034-A	s	ROLLER BLOCK ASS'Y (2), DRAWER
402	A-6746-045-A	s	ROLLER BLOCK ASS'Y, T GUIDE
403	A-6746-057-A	s	ROLLER BLOCK ASS'Y, S DRAWER
404	A-6750-202-A	o	LEVER BLOCK ASS'Y, DRAWER
405	A-6750-218-A	o	ARM BLOCK ASS'Y, T DRAWER
406	A-6750-225-F	o	ARM BLOCK, ASS'Y, DRAWER, S
407	X-3668-712-3	s	SHAFT (2) ASS'Y, ROLLER
408	X-3668-713-0	o	LINK (B) ASS'Y, DRIVING
409	X-3668-716-0	s	SHAFT (3) ASS'Y, ROLLER
410	X-3668-718-0	s	GUIDE ASS'Y, TAPE
411	X-3668-727-0	s	GUIDE ASS'Y, TAPE
412	X-3668-729-0	s	LEVER ASS'Y, DRAWER
413	X-3672-705-1	o	PLATE ASS'Y, GUIDE, T
414	X-3672-706-1	o	BASE ASS'Y, S DRAWER ARM
415	X-3672-708-1	o	ARM ASS'Y, T DRAWER
416	X-3718-305-1	o	RITAINER ASS'Y, ARM, T DRAWER
417	X-3718-615-3	o	ARM, ASS'Y DRAWER, S
418	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
419	3-534-854-00	s	SPRING, COMPRESSION
420	3-540-506-00	s	SPRING, TENSION
421	3-668-718-00	s	RETAINER, SPRING, S DRAWER
422	3-668-719-00	s	HOLDER (L), S GUIDE
423	3-668-721-00	s	ARM, S DRIVING
424	3-668-724-00	o	FLANGE (2), LOWER
425	3-668-734-00	o	SPRING
426	3-668-735-00	s	RETAINER, SPRING
427	3-668-760-00	o	SHAFT, DRAWER LEVER
428	3-669-946-00	s	RING (P4), O
429	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.13T
430	3-703-074-00	s	CAP 3, SHAFT
431	3-718-701-02	s	HOLDER (M), S GUIDE
432	3-718-773-01	s	SPRING, COMPRESSION
433	3-734-304-01	o	LIMITER, S DRAWER

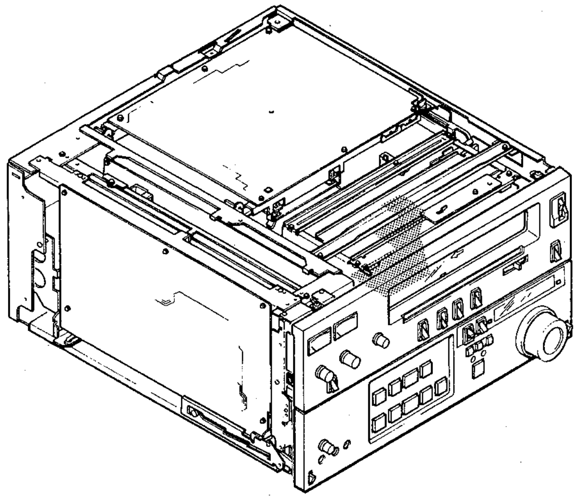
DRUM AND CAPSTAN BLOCKS

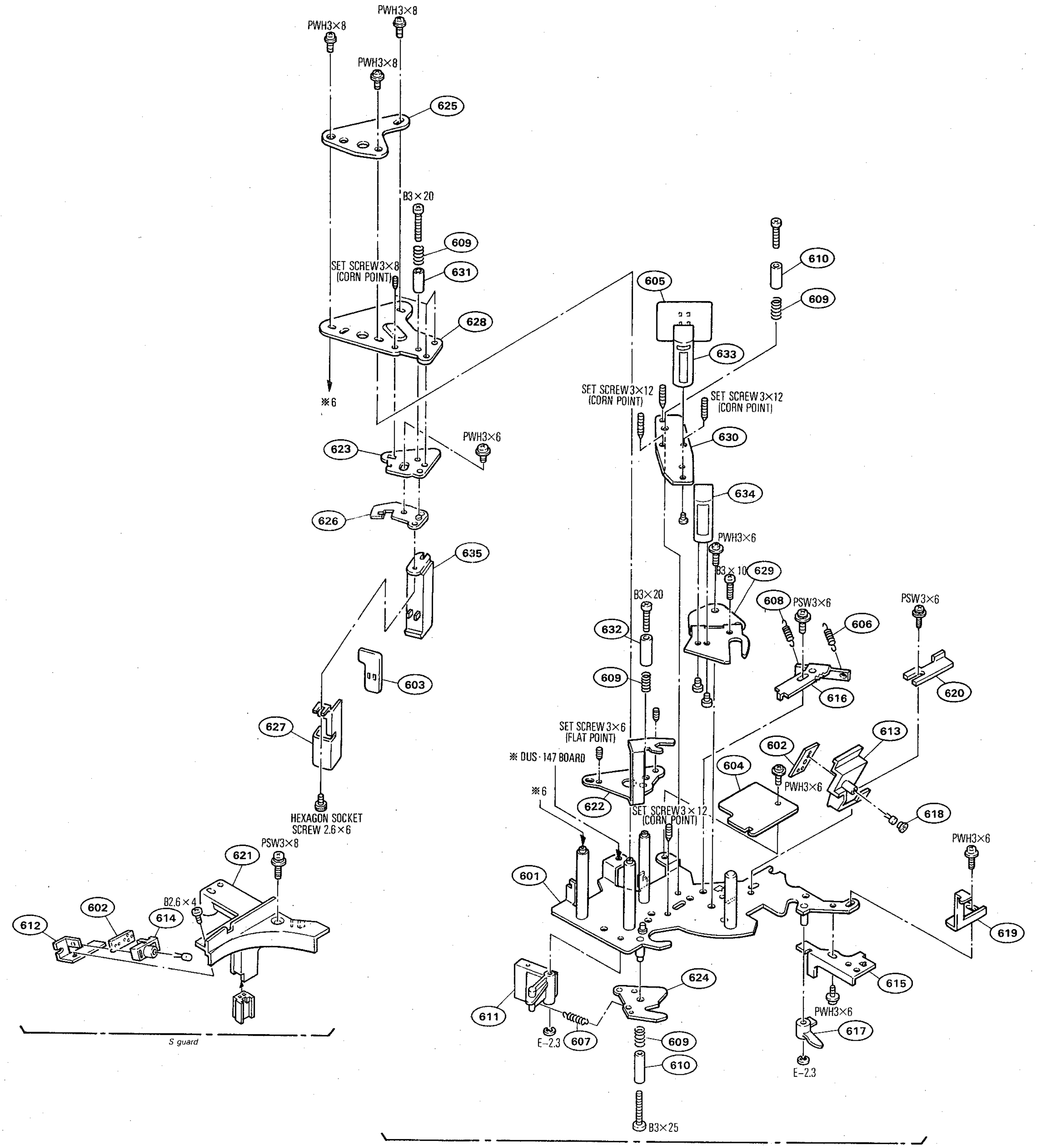



head drum
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
PWH3×6
SET SCREW 3×8
W3mm dia
(CORN POINT)
P3×10
B2.6×6
P2×2.5
to E Head Base
SET SCREW3×6
PSW3×8
WP3×4
PS4×12
PS3×12
audio CTL head

No.	Part No.	SP	Description
501	A-6709-637-A	s	UPPER DRUM ASS'Y, DUR-46-R
502	A-6709-682-A	s	HEAD DRUM ASS'Y, DUH-46B-R
503	A-6746-054-A	s	ROLLER ASS'Y, GUIDE, TAPE
504	1-586-633-00	s	DETECTOR, DEW
505	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
506	3-630-029-01	s	SPACER, FLANGE (0.01T)
507	3-630-029-11	s	SPACER, FLANGE (0.02T)
508	3-630-029-21	s	SPACER, FLANGE (0.05T)
509	3-630-029-31	s	SPACER, FLANGE (0.1T)
510	3-630-029-41	s	SPACER, FLANGE (0.03T)
511	3-641-612-00	s	GUIDE, TAPE
512	3-641-615-00	s	SPRING, COMPRESSION
513	3-641-616-00	s	NUT, TAPE GUIDE ADJUSTMENT
514	3-641-621-00	o	SCREW, HEAD ADJUSTMENT
515	3-641-622-00	s	SPRING, COMPRESSION
516	3-645-076-00	o	WASHER, M-REEL S
517	3-647-815-00	o	PLATE, ADJUSTMENT, CTL HEAD
518	3-647-816-00	o	POLE, SUPPORT, CTL BRACKET
519	3-655-631-00	o	TERMINAL, GROUND
520	3-655-675-02	o	CASE (F), AU
521	3-655-676-01	o	BRACKET (A), CTL HEAD
522	3-655-677-01	o	BRACKET (B), CTL HEAD
523	3-655-678-03	o	CASE (B), AU
524	3-672-762-01	o	PIN, DRUM
525	3-672-763-01	o	CAM, P OFFSET PREVENTION
526	3-688-807-01	s	FLANGE, TAPE GUIDE
527	3-718-388-01	s	GUIDE (TG-4N), TAPE
528	3-718-387-01	s	GUIDE (TG-3N), TAPE
529	7-682-563-04	s	SCREW +B4x12
530	8-825-578-22	s	HEAD, ACE
531	8-835-258-02	s	MOTOR, DC BHF-1915B
532	A-6736-071-B	o	HEAD BLOCK ASS'Y, AUDIO
533	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

ERASE HEAD BASE



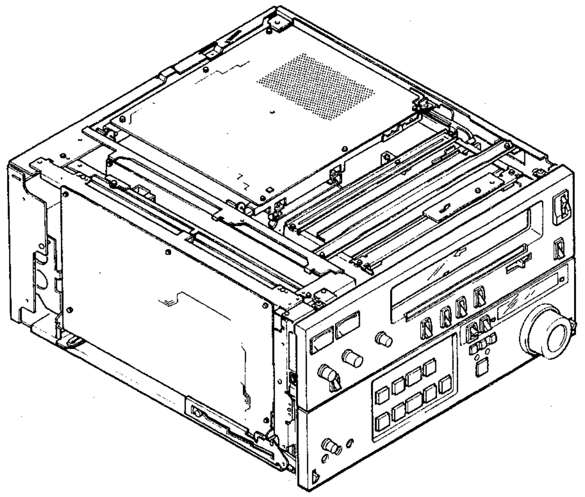

PWH3×8
PWH3×8
PWH3×8
625
B3×20
609
SET SCREW3×8 (CORN POINT)
631
628
※6
623
PWH3×6
626
635
603
627
HEXAGON SOCKET SCREW 2.6×6
PSW3×8
621
602
B2.6×4
614
612
605
633
610
609
SET SCREW3×12 (CORN POINT)
SET SCREW3×12 (CORN POINT)
630
634
PWH3×6
B3×10
629
608
PSW3×6
606
616
PSW3×6
620
B3×20
632
609
SET SCREW3×6 (FLAT POINT)
※ DUS-147 BOARD
※6
622
SET SCREW3×12 (CORN POINT)
604
602
PWH3×6
613
618
601
PWH3×6
619
615
611
624
E-2.3
607
609
610
PWH3×6
617
E-2.3
B3×25

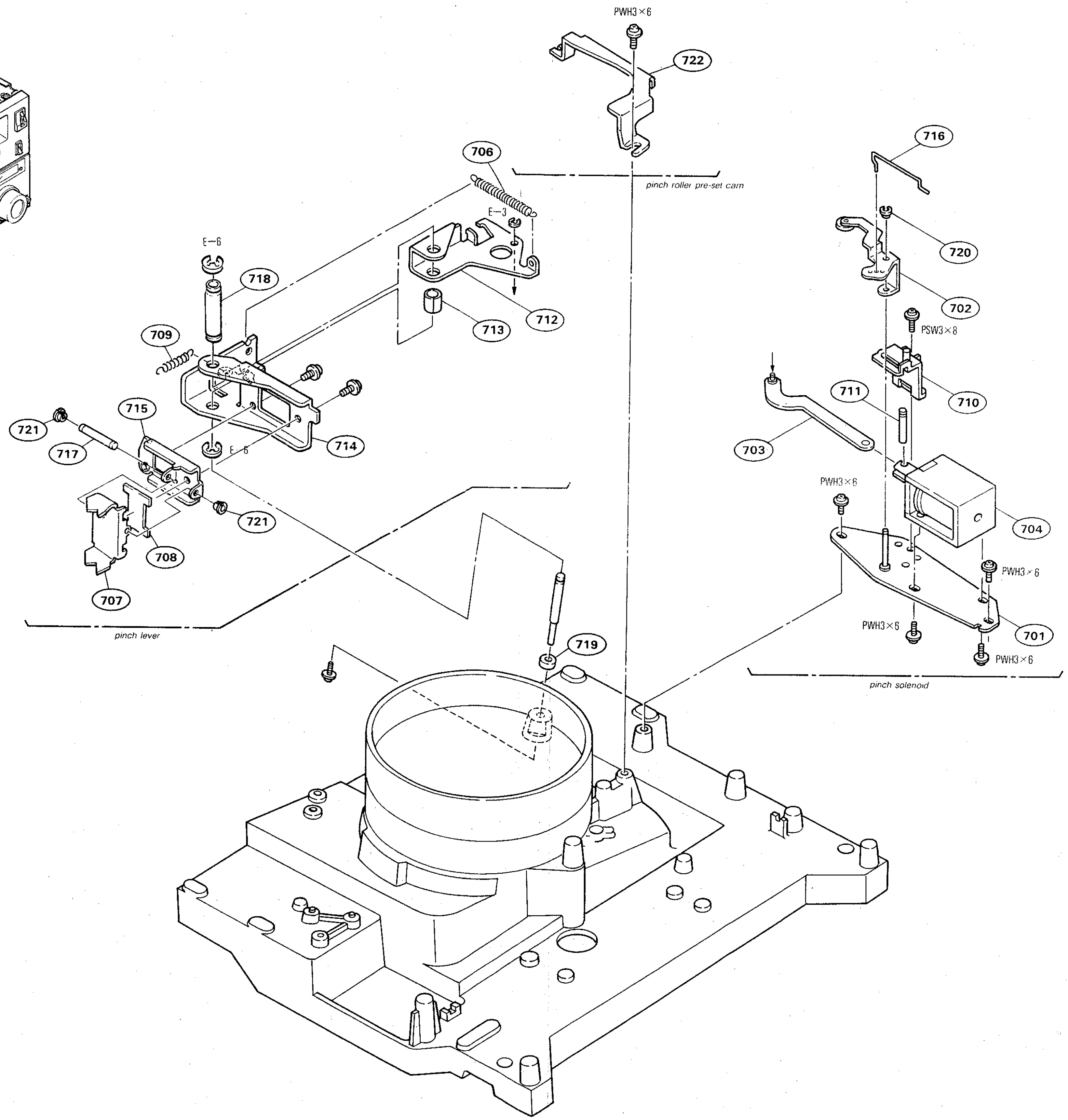
S guard

erase head base

No.	Part No.	SP	Description
601	X-3733-605-1	o	BASE ASS'Y, E HEAD
602	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
603	1-622-726-11	o	PRINTED CIRCUIT BOARD, HN-84
604	1-629-474-11	o	PRINTED CIRCUIT BOARD, HN-130
605	1-629-475-11	o	PRINTED CIRCUIT BOARD, EC-32
606	3-534-238-XX	s	SPRING, TENSION (23T)
607	3-535-531-00	s	SPRING, TENSION
608	3-538-102-00	s	SPRING, TENSION
609	3-637-335-00	s	SPRING, COMPRESSION (C)
610	3-657-086-00	o	SPACER (3x20)
611	3-668-708-00	o	ARM, DRIVING, CORRECTION GUIDE
612	3-668-809-02	o	BRACKET, HOLDER
613	3-668-832-02	o	HOLDER (S)
614	3-668-837-00	o	HOLDER, LED
615	3-668-859-00	o	STOPPER, RING
616	3-668-860-00	o	HOOK, SPRING, TENSION REGULATOR
617	3-668-894-00	o	LEVER, RELEASE
618	3-669-920-00	o	COVER, S PHOTO
619	3-669-963-00	o	SPRING, LEAF, GROUND
620	3-669-964-00	o	PLATE, GROUND
621	3-672-764-03	s	GUARD, S
622	3-718-622-01	s	HOLDER (UPPER), S
623	3-718-623-01	o	PLATE, TC
624	3-718-624-01	s	HOLDER (LOWER), S
625	3-718-641-01	o	PLATE, ADJUSTMENT, Y
626	3-718-644-01	o	PLATE, BALANCE
627	3-718-646-01	o	SHIELD, TC HEAD
628	3-718-649-01	o	PLATE, Y
629	3-733-609-01	o	BASE, E HEAD
630	3-733-610-01	o	BASE, CTL
631	4-855-006-01	s	SPACER (3x12)
632	4-855-006-11	s	SPACER (3x14)
633	8-825-514-20	s	HEAD, CTL (PP170-58)
634	8-825-544-20	s	HEAD, ERASE
635	8-825-771-31	s	HEAD, TIME CODE PP295-58

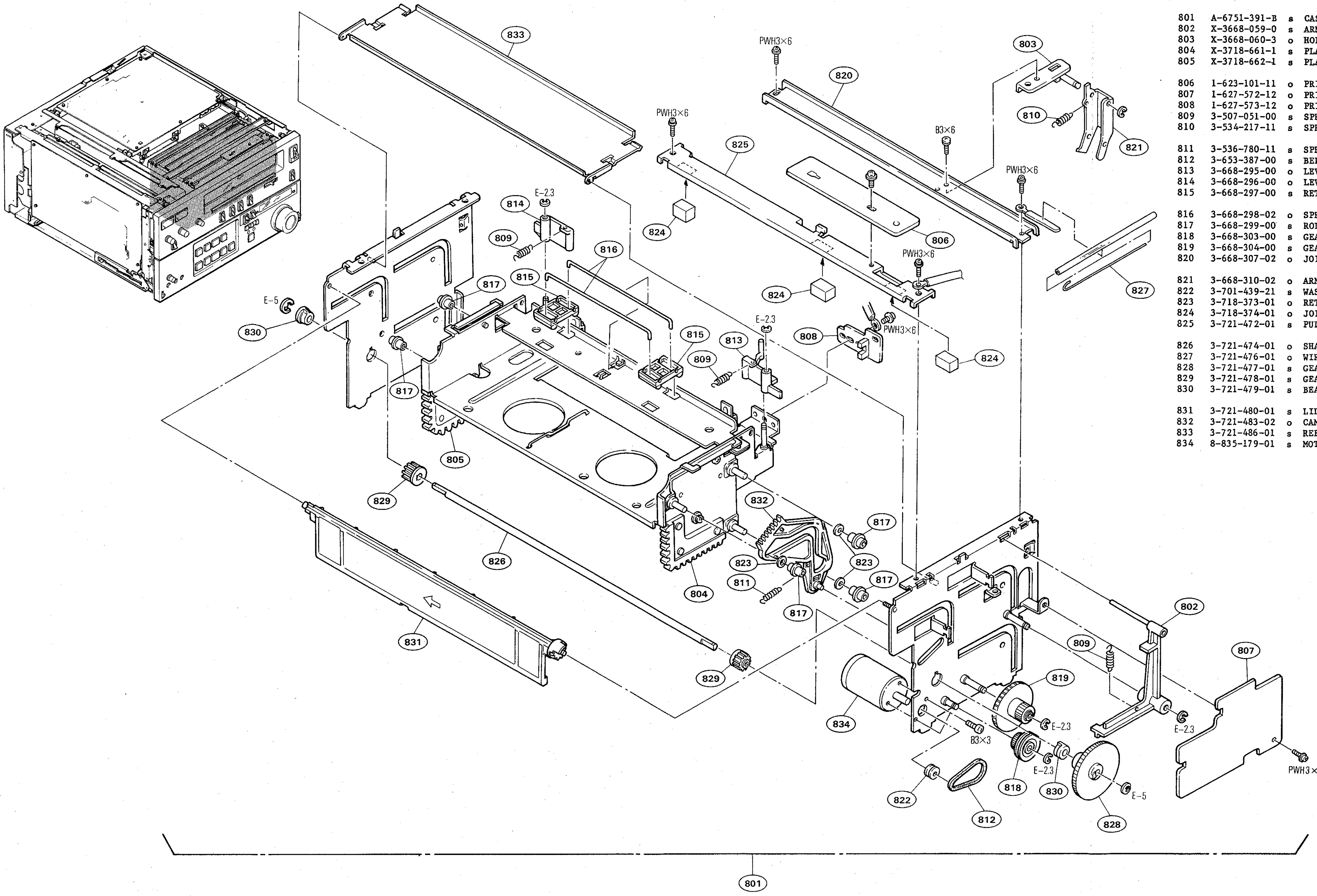
PINCH LEVER AND PINCH SOLENOID BLOCKS




PWH3×6
722
pinch roller pre-set cam
706
E-3
716
720
702
PSW3×8
710
711
703
E-6
718
712
713
709
715
721
717
714
E-6
721
708
707
pinch lever
PWH3×6
704
PWH3×6
PWH3×6
701
PWH3×6
pinch solenoid
719

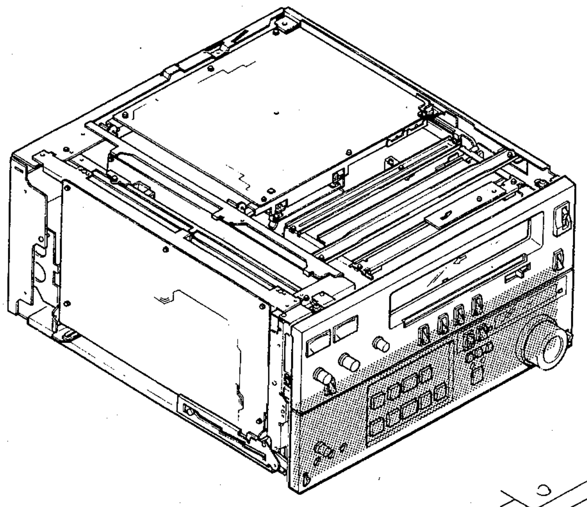
No.	Part No.	SP	Description
701	X-3668-734-0	o	BASE ASS'Y, PINCH PRESS
702	X-3668-735-3	s	LEVER ASS'Y, RESERVE PRESS
703	X-3668-736-0	o	JOINT ASS'Y
704	1-454-416-31	s	SOLENOID, PLUNGER
706	3-610-265-02	s	SPRING
707	3-642-518-00	o	LEVER, PINCH
708	3-642-519-00	o	SPRING
709	3-645-392-00	s	SPRING, TENSION
710	3-668-863-00	s	GUIDE, ARBOR
711	3-668-864-00	s	PIN, SOLENOID
712	3-668-865-00	o	LEVER (B), PINCH PRESS
713	3-668-867-00	o	SPACER (8x9)
714	3-668-868-00	o	LEVER (A), PINCH PRESS
715	3-668-883-00	o	PLATE, ADJUSTMENT, PINCH PRESS
716	3-668-884-03	o	JOINT, RESERVE PRESS
717	3-668-895-00	o	SHAFT
718	3-668-896-00	o	SLEEVE, PRESS LEVER, PINCH
719	3-672-733-01	o	TABLE, SHAFT, PRESS LEVER
720	3-703-074-00	s	CAP 3, SHAFT
721	3-703-075-00	s	CAP 2, SHAFT
722	3-718-777-02	o	DECK, RESERVE PRESS

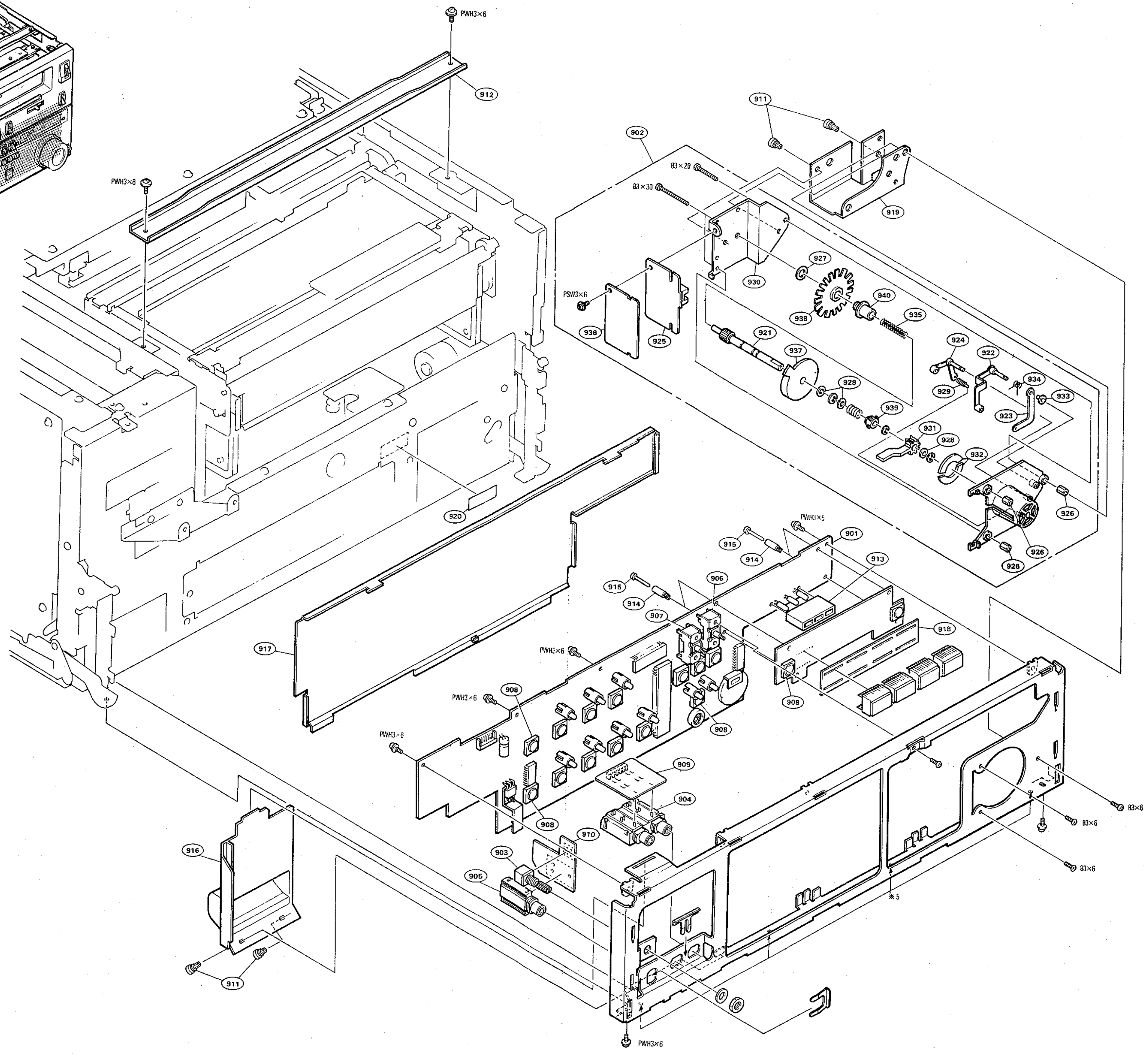
CASSETTE-UP COMPARTMENT BLOCK


833
PWH3×6
820
803
810
821
PWH3×6
825
B3×6
PWH3×6
814
E-2.3
809
816
824
806
PWH3×6
827
E-5
817
815
824
830
E-2.3
808
PWH3×6
815
813
809
824
817
805
832
829
817
823
823
826
811
817
804
817
802
831
809
807
819
829
834
E-2.3
B3×3
E-2.3
E-2.3
818
830
E-5
PWH3×6
822
812
828
801

No.	Part No.	SP	Description
801	A-6751-391-B	s	CASSETTE-UP BLOCK ASS'Y
802	X-3668-059-0	s	ARM ASS'Y, SWITCH, DOWN
803	X-3668-060-3	o	HOLDER ASS'Y, ARM
804	X-3718-661-1	s	PLATE (RIGHT) ASS'Y, RACK
805	X-3718-662-1	s	PLATE (LEFT) ASS'Y, RACK
806	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
807	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
808	1-627-573-12	o	PRINTED CIRCUIT BOARD, CC-37
809	3-507-051-00	s	SPRING, TENSION
810	3-534-217-11	s	SPRING, TENSION
811	3-536-780-11	s	SPRING, TENSION
812	3-653-387-00	s	BELT, LM
813	3-668-295-00	o	LEVER (RIGHT), CASSETTE PUSH-OUT
814	3-668-296-00	o	LEVER (LEFT), CASSETTE PUSH-OUT
815	3-668-297-00	s	RETAINER, CASSETTE
816	3-668-298-02	o	SPRING
817	3-668-299-00	s	ROLLER, GUIDE
818	3-668-303-00	s	GEAR (A)
819	3-668-304-00	s	GEAR (B)
820	3-668-307-02	o	JOINT (R), LEFT & RIGHT
821	3-668-310-02	o	ARM, LID OPEN
822	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
823	3-718-373-01	o	RETAINER, LID
824	3-718-374-01	o	JOINT (F), LEFT & RIGHT
825	3-721-472-01	s	PULLEY MOTOR
826	3-721-474-01	o	SHAFT, DRIVER
827	3-721-476-01	o	WIRE, FIXED
828	3-721-477-01	s	GEAR (C)
829	3-721-478-01	s	GEAR (D)
830	3-721-479-01	s	BEARING (6)
831	3-721-480-01	s	LID, CASSETTE
832	3-721-483-02	o	CAM, LID OPEN
833	3-721-486-01	s	REFLECTOR
834	8-835-179-01	s	MOTOR, DC MCB2B15

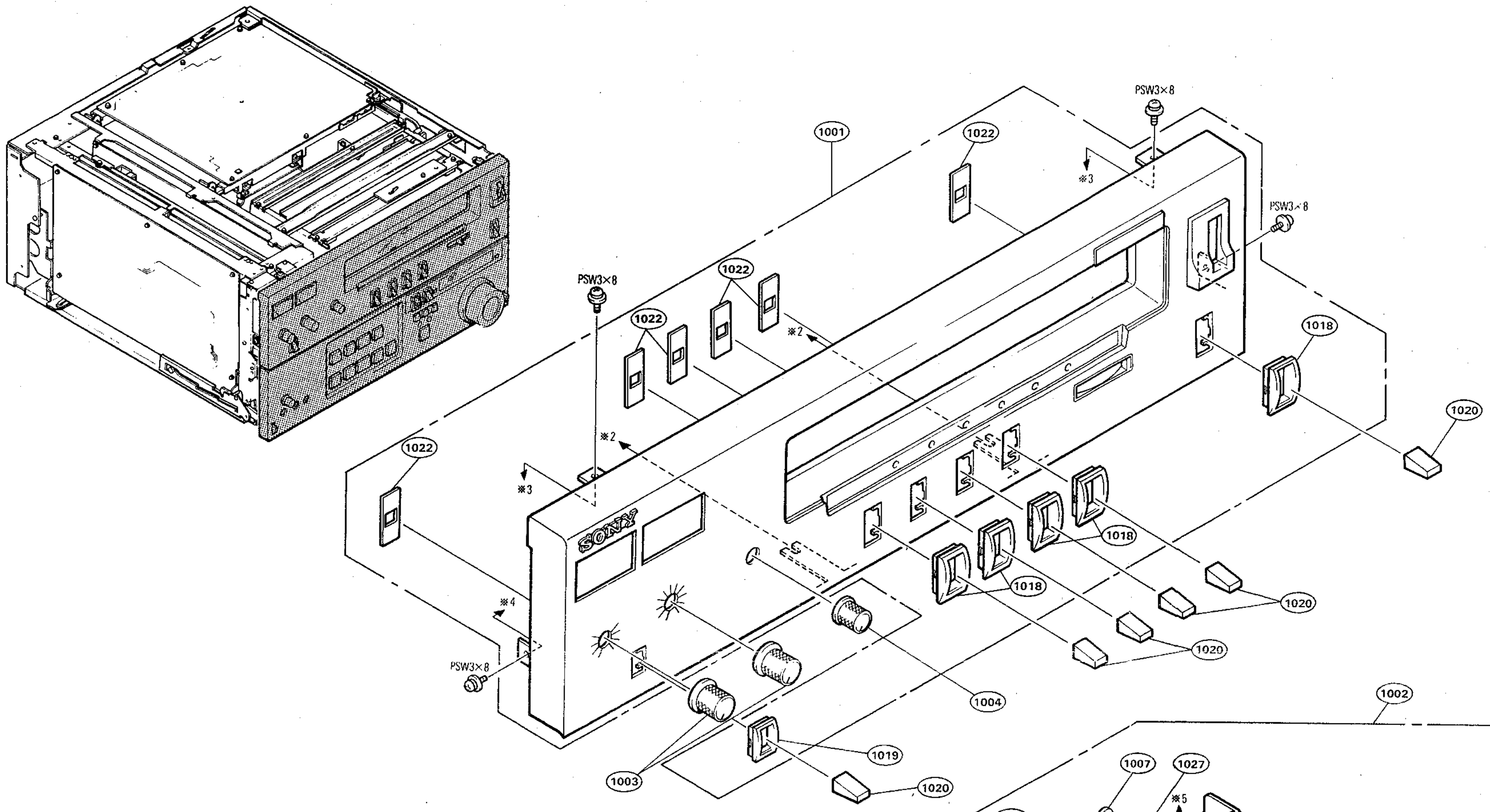
FUNCTION CONTROL



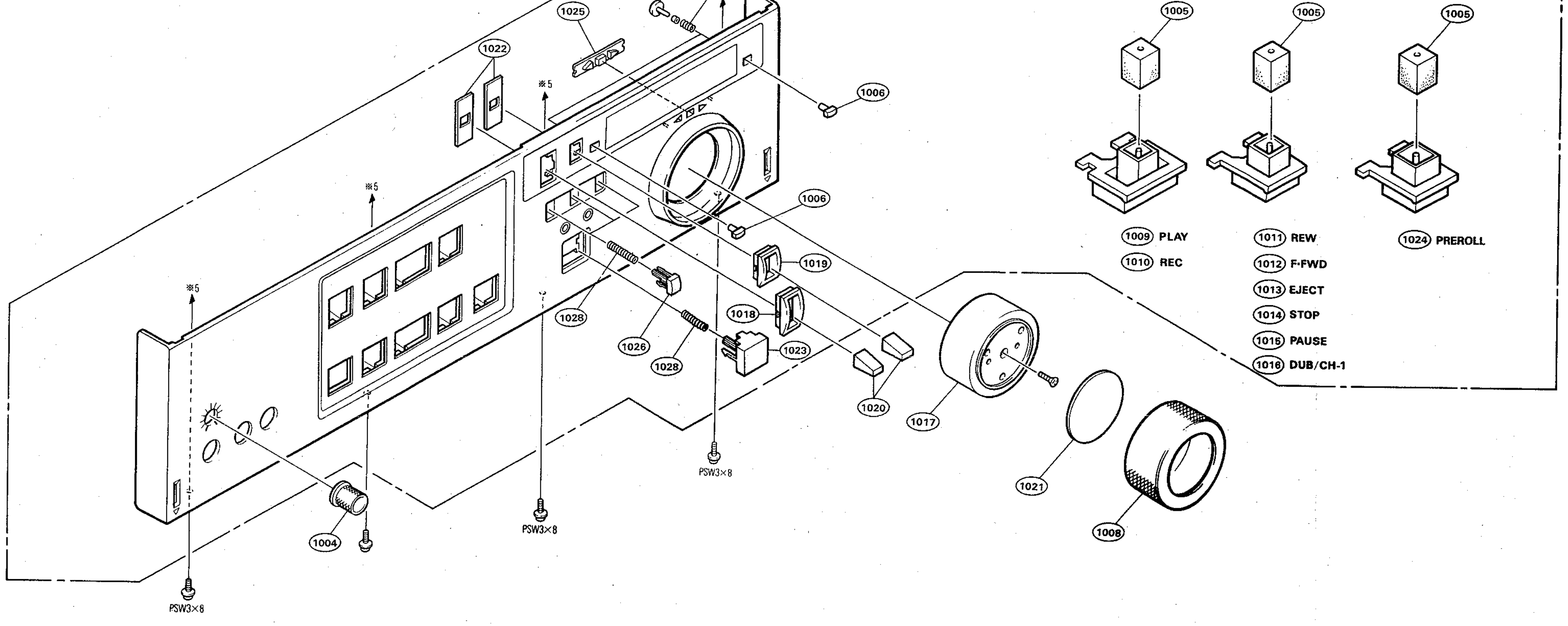

PWH3×6
912
PWH3×6
911
902
B3×20
B3×30
919
927
930
PSW3×6
940
938
935
936
925
921
937
924
922
934
933
929
928
939
923
931
932
926
920
917
PWH3×5
901
915
914
913
906
915
914
907
918
PWH3×6
908
908
909
904
910
903
905
916
911
B3×6
PWH3×6

No.	Part No.	SP	Description
901	A-6717-526-A	o	MOUNTED CIRCUIT BOARD, KY-159A
902	A-6734-238-B	s	DIAL BLOCK ASS'Y, SEARCH
903	1-237-703-11	s	RES, VAR, CARBON 2K/2K
904	1-507-797-21	s	JACK, LARGE TYPE 2P
905	1-507-854-00	s	JACK, LARGE TYPE
906	1-516-961-00	s	SWITCH, LEVER SLIDE
907	1-516-995-00	s	SWITCH, LEVER SLIDE
908	1-552-539-00	s	SWITCH, KEY BOARD
909	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
910	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
911	3-531-576-01	s	RIVET
912	3-672-765-01	o	BRACKET, C
913	3-718-657-01	o	HOLDER, LED
914	3-733-617-01	s	HOLDER, BUZZER
915	3-733-618-01	s	PIN, BUZZER HOLDER
916	3-733-620-01	o	PROTECT, MC
917	3-733-645-01	o	PROTECTOR, KY
918	3-733-652-01	o	SPACER, 7 SEG
919	3-733-668-01	o	COVER, SD
920	3-703-079-31	s	LABEL, CAUTION (BACK)
921	X-3717-226-1	o	SHAFT SUB ASS'Y, MAIN
922	X-3717-227-1	o	ARM (RIGHT) ASS'Y, S10
923	X-3717-228-1	o	ARM (LEFT) ASS'Y, S10
924	X-3717-229-1	o	ARM ASS'Y, RETURN
925	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
926	2-280-622-11	o	SUPPORT (M3), HEXAGON
927	3-662-048-00	s	WASHER, BRACKET
928	3-701-443-21	s	WASHER, POLY 5MM DIA., 0.5T
929	3-701-788-XX	s	SPRING, TENSION (15T)
930	3-717-315-01	o	PLATE, BOTTOM, SD
931	3-717-316-02	o	GUIDE, LOCK IN
932	3-717-317-01	o	PLATE, CLUTCH
933	3-717-318-01	o	BEARING, S10
934	3-717-319-01	o	SPRING, TORSION
935	3-717-320-01	o	SPRING, COMPRESSION
936	3-717-321-01	o	PROTECTOR, PTC
937	3-717-417-01	o	CAM
938	3-717-418-01	o	PLATE
939	3-717-546-01	o	GUIDE, LOCK OUT
940	3-717-553-01	o	BEARING, SD

FRONT PANEL AND KEY PANEL BLOCKS



PSW3×8
1001
1022
※3
PSW3×8
1018
※2
1020
1022
※3
※4
PSW3×8
1018
1020
1004
1003
1019
1020



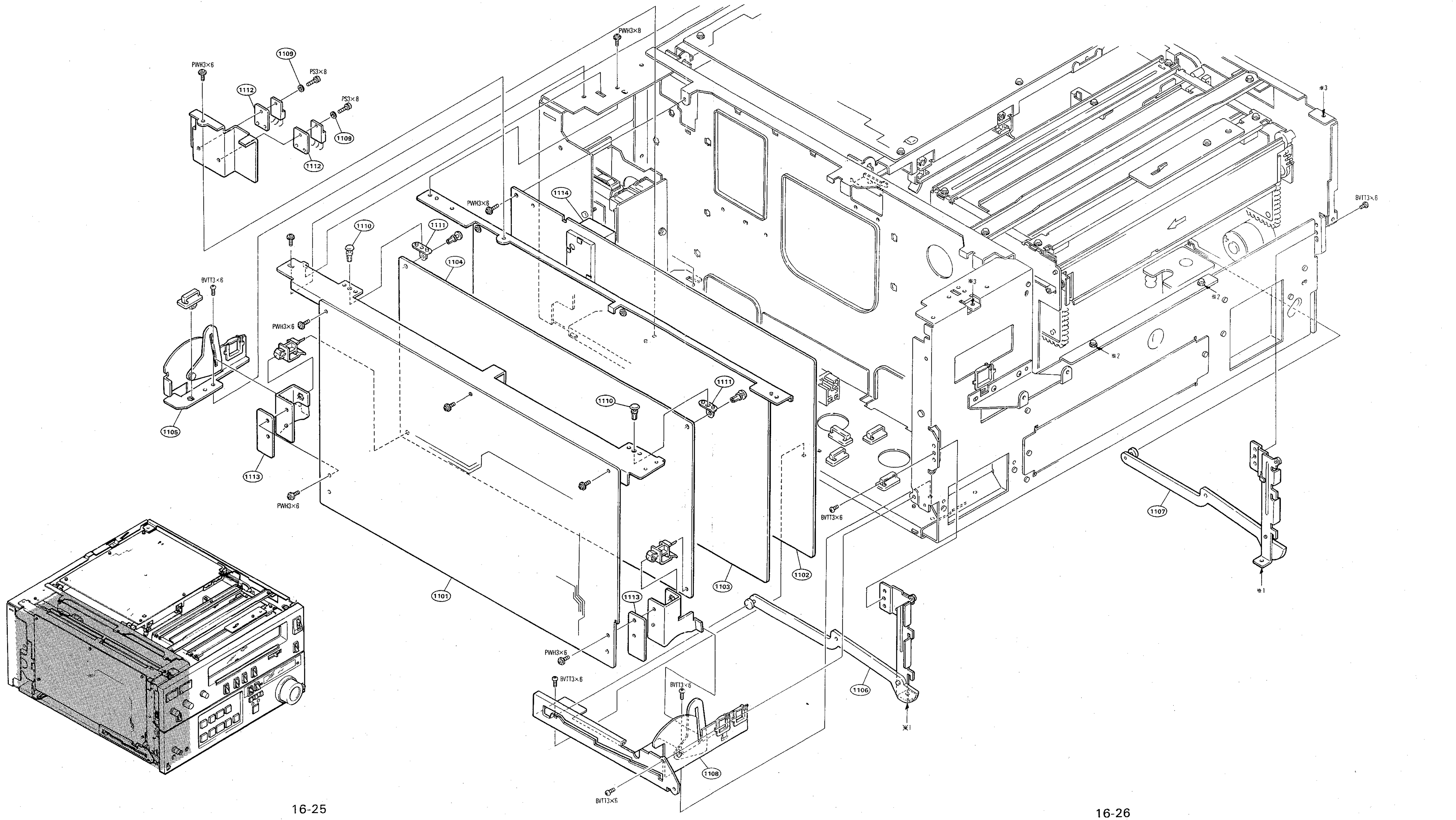
1002
1007
1027
1025
※5
1022
1006
1006
※5
1019
1018
1028
1026
1028
1023
1020
1017
1021
1008
※5
1004
PSW3×8
PSW3×8
PSW3×8
1005
1005
1005
1009 PLAY
1010 REC
1011 REW
1012 F-FWD
1013 EJECT
1014 STOP
1015 PAUSE
1016 DUB/CH-1
1024 PREROLL

No.	Part No.	SP	Description
1001	A-6704-365-A	o	PANEL BLOCK ASS'Y, FRONT
1002	A-6704-366-A	o	PANEL BLOCK ASS'Y, KEY
1003	X-3661-073-0	s	KNOB ASS'Y, CONTROL
1004	X-3668-075-0	s	KNOB ASS'Y, CONTROL
1005	2-284-744-00	o	CUSHION (B), KEY
1006	3-668-008-02	s	PUSH BUTTON (3x5)
1007	3-668-009-02	s	PIN, PUSH BOTTON
1008	3-668-012-00	s	RUBBER, DIAL KNOB
1009	3-672-782-02	s	KEY TOP (A) "PLAY"
1010	3-672-782-11	s	KEY TOP (A) "REC"
1011	3-672-783-02	s	KEY TOP (B) "REW"
1012	3-672-783-12	s	KEY TOP (B) "F FWD"
1013	3-672-783-32	s	KEY TOP (B) "EJECT"
1014	3-672-783-42	s	KEY TOP (B) "STOP"
1015	3-672-783-52	s	KEY TOP (B) "PAUSE"
1016	3-672-783-61	s	KEY TOP (B) "DUB/CH-1"
1017	3-717-370-01	o	KNOB, DIAL
1018	3-717-374-01	o	FRAME (23x12), ORNAMENTAL, SW
1019	3-717-375-01	o	FRAME (18x12), ORNAMENTAL, SW
1020	3-717-382-01	s	KNOB, LEVER SW
1021	3-717-557-01	o	PLATE, KNOB
1022	3-717-613-01	o	PLATE, ORNAMENTAL, LSW
1023	3-733-602-01	s	KEY TOP (S)
1024	3-733-604-01	s	KEY TOP (PC) "PREROLL"
1025	3-733-605-01	s	COVER, LED
1026	3-733-606-02	s	PUSH BUTTON (5x9)
1027	4-309-349-00	s	SPRING, COIL
1028	4-866-613-00	s	SPRING, COMPRESSION

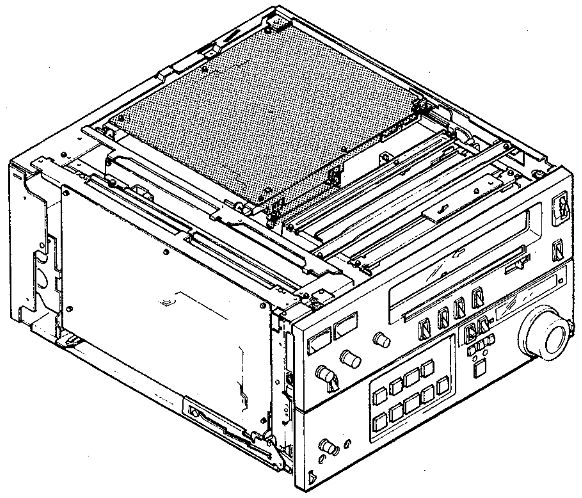
CHASSIS BLOCK (1), LEFT SIDE

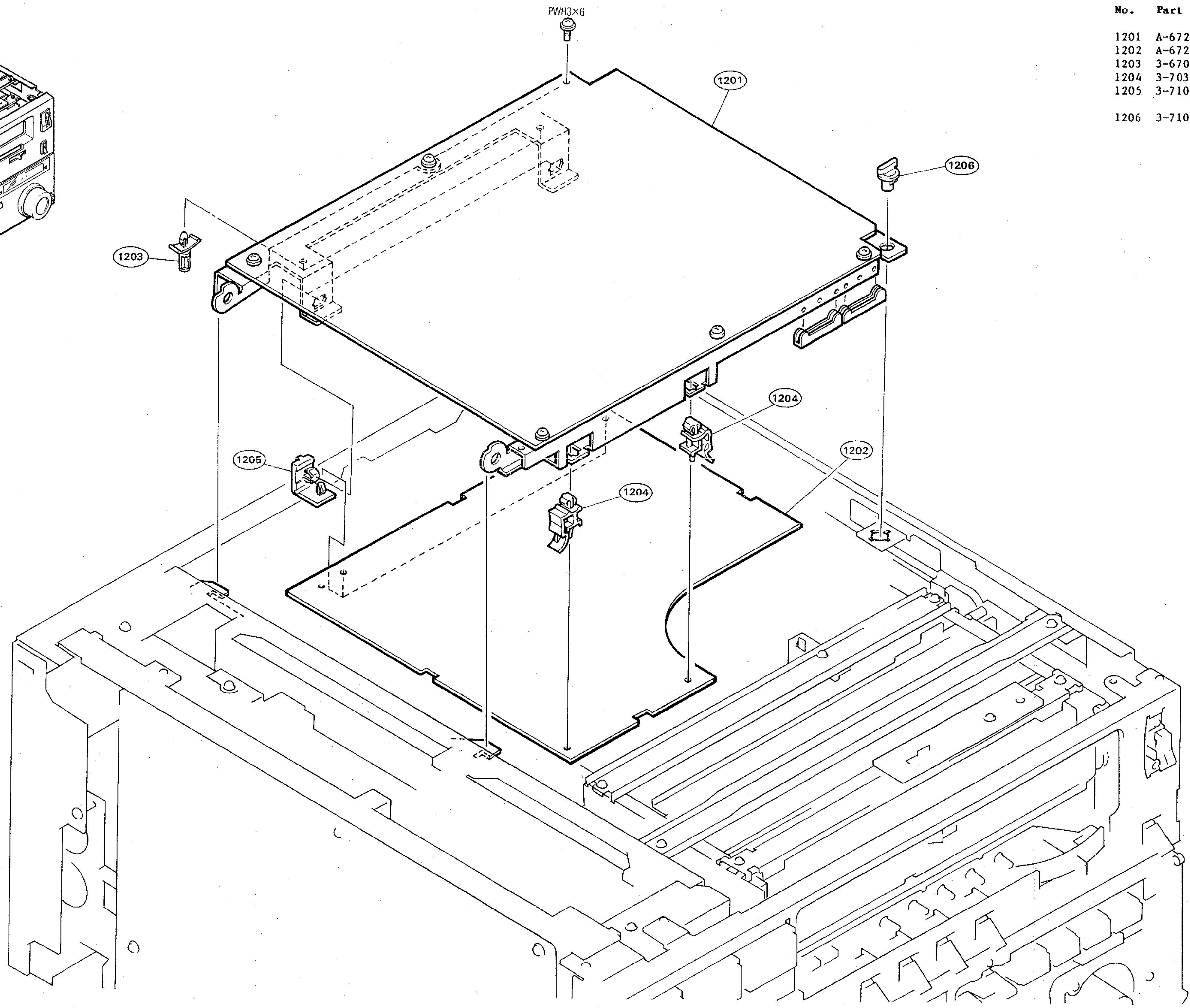
No.	Part No.	SP	Description
1101	A-6713-364-A	o	MOUNTED CIRCUIT BOARD, AU-124A
1102⚠	A-6727-083-A	o	MOUNTED CIRCUIT BOARD, MD-60A
1103⚠	A-6727-085-A	o	MOUNTED CIRCUIT BOARD, SV-112C
1104⚠	A-6727-048-A	o	MOUNTED CIRCUIT BOARD, NR-31A
1105	X-3733-601-1	o	PLATE (2) ASS'Y, SLIDE, AU

No.	Part No.	SP	Description
1106	X-3733-602-1	o	HINGE (LEFT) ASS'Y
1107	X-3733-603-1	o	HINGE (RIGHT) ASS'Y
1108	X-3733-604-1	o	PLATE (1) ASS'Y, SLIDE, AU
1109	2-371-561-00	s	BUSHING (P), INSULATING
1110	3-646-090-00	s	RIVET, NYLON
1111	3-657-153-00	o	HINGE
1112	3-703-037-00	s	INSULATOR, TO-220
1113	3-733-616-01	o	SHEET, INSULATING, AU
1114	3-733-657-01	o	SHIELD (LID), MD


PWH3×6
1109
PS3×8
1112
PS3×8
1109
1112
PWH3×8
1114
PWH3×6
1110
1111
1104
BVTT3×6
PWH3×6
1105
1113
PWH3×6
1111
1110
1101
1103
1102
1113
PWH3×6
BVTT3×6
BVTT3×6
BVTT3×6
1108
1106
※1
BVTT3×6
※3
※2
※2
※3
BVTT3×6
1107
※1

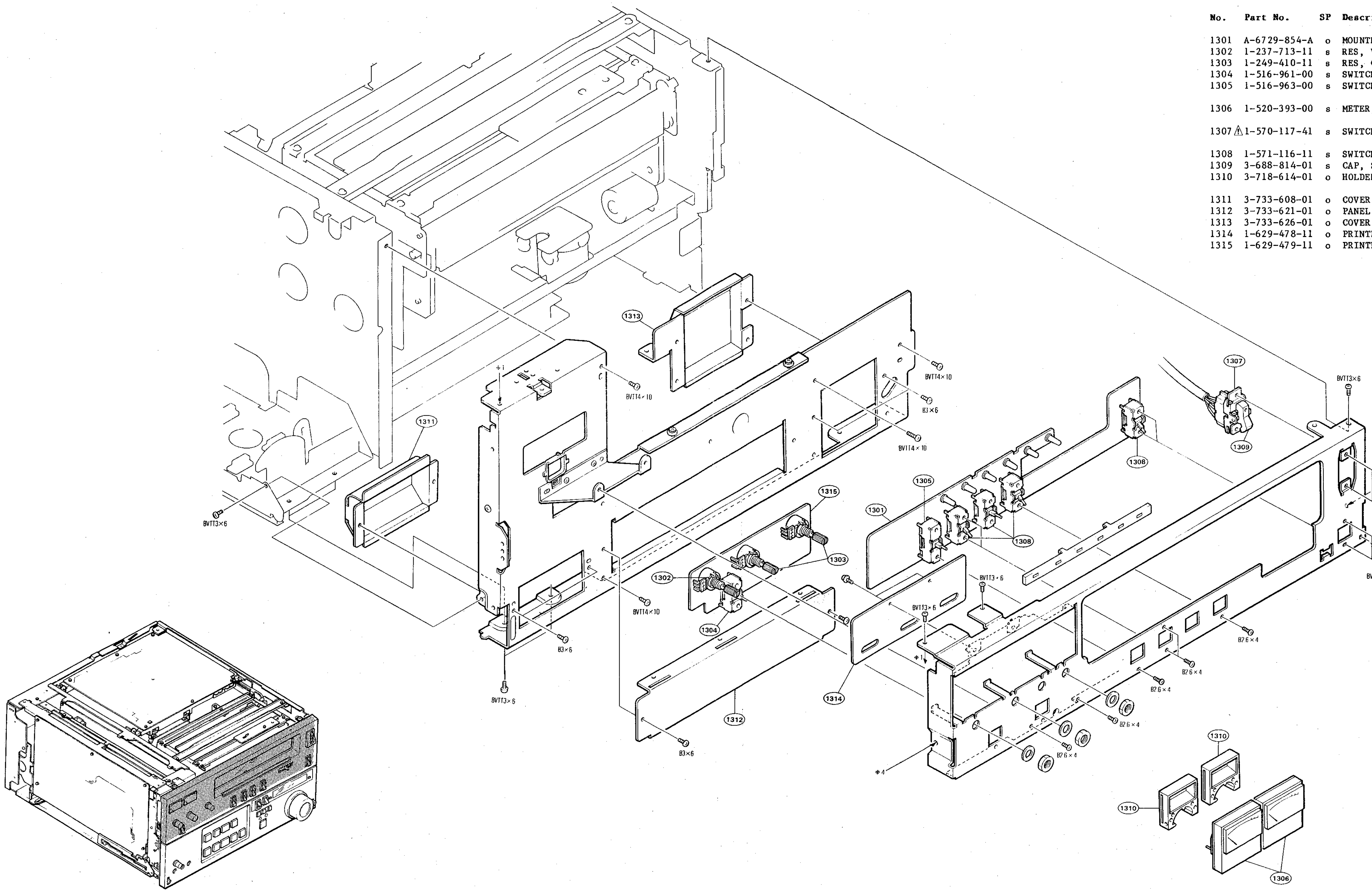
CHASSIS BLOCK (2), TOP




PWH3×6
1201
1206
1203
1204
1205
1202
1204

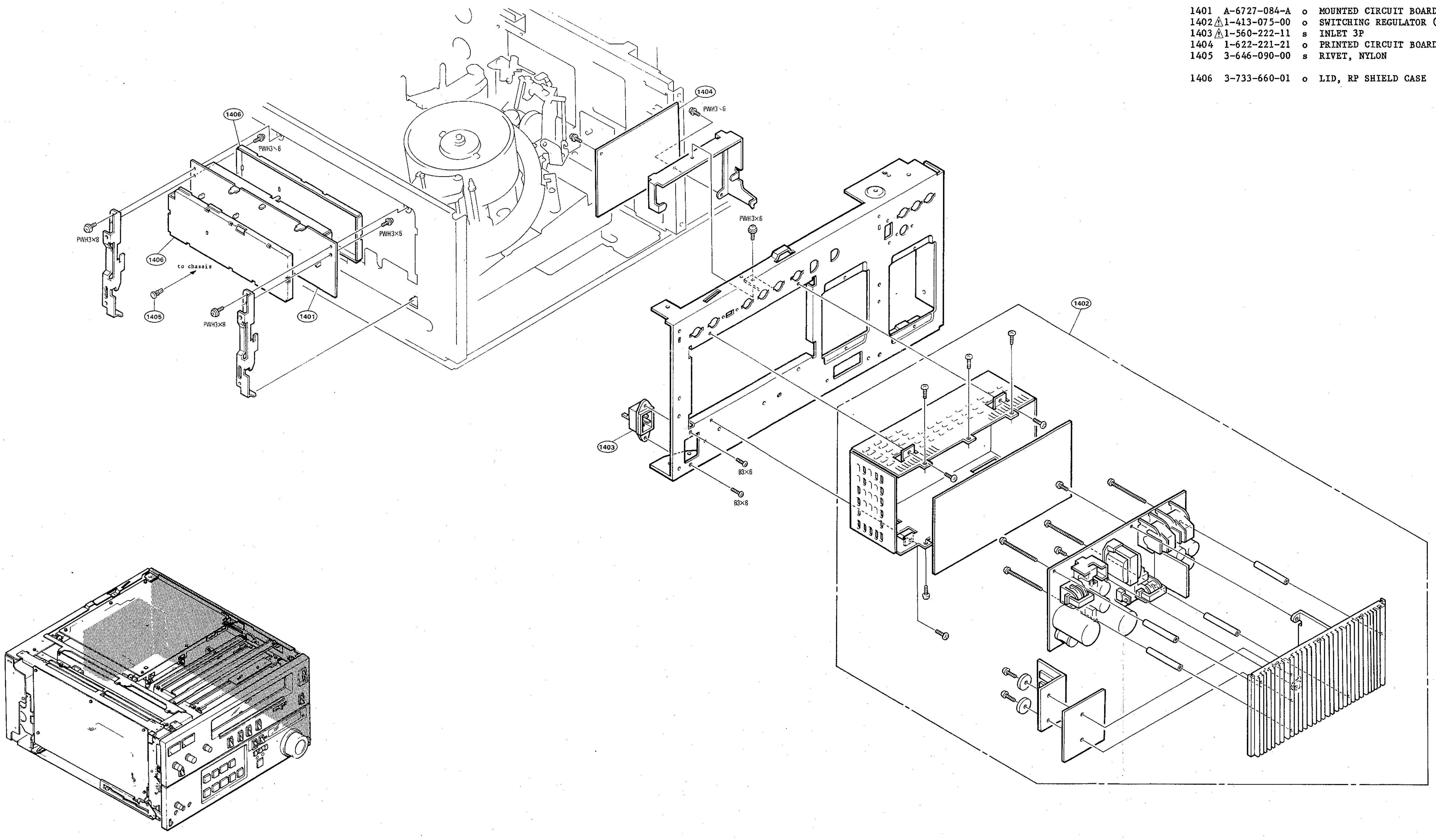
No.	Part No.	SP	Description
1201	A-6727-087-A	o	MOUNTED CIRCUIT BOARD, DM-72
1202	A-6727-088-A	o	MOUNTED CIRCUIT BOARD, DM-73
1203	3-670-570-31	o	SPACER, SUPPORT
1204	3-703-141-00	o	HOLDER, PCB
1205	3-710-565-01	o	HINGE, PC BOARD
1206	3-710-825-01	o	FASTENER, PLATE

LEVEL CONTROL


1313
BVTT4×10
1311
BVTT3×6
*1
1315
1303
1302
1304
B3×6
BVTT3×6
BVTT4×10
1312
B3×6
1314
1301
1305
1308
BVTT3×6
BVTT4×10
B3×6
1307
1309
*4
BVTT2.6×4
B2.6×4
1310
1306

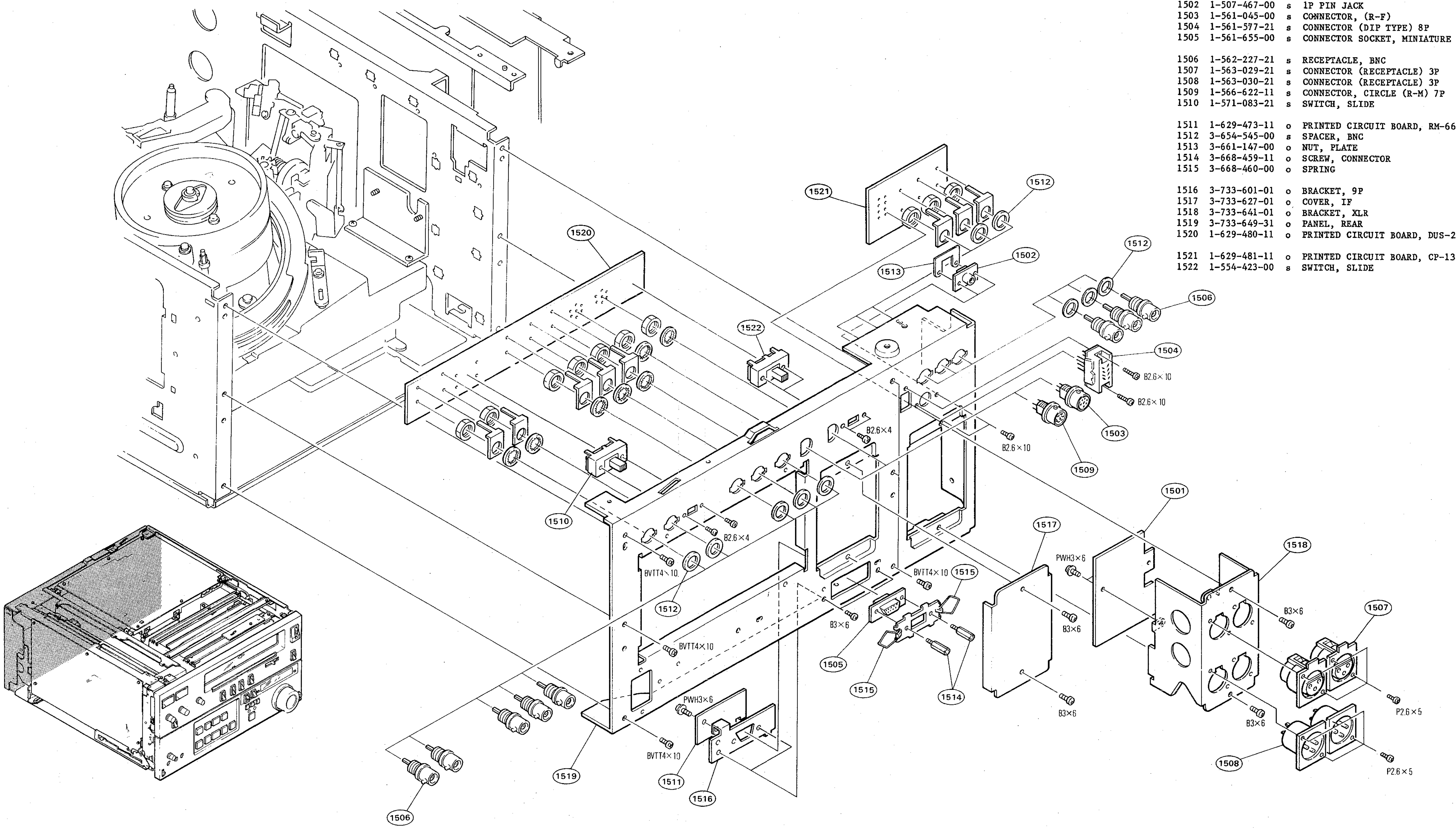
No.	Part No.	SP	Description
1301	A-6729-854-A	o	MOUNTED CIRCUIT BOARD, SW-315A
1302	1-237-713-11	s	RES, VAR, CARBON 100K
1303	1-249-410-11	s	RES, CARBON (SMALL) 270
1304	1-516-961-00	s	SWITCH, LEVER SLIDE
1305	1-516-963-00	s	SWITCH, LEVER SLIDE
1306	1-520-393-00	s	METER, AUDIO
1307 ⚠	1-570-117-41	s	SWITCH, SEESAW (AC POWER)
1308	1-571-116-11	s	SWITCH, LEVER SLIDE
1309	3-688-814-01	s	CAP, SWITCH
1310	3-718-614-01	o	HOLDER (B), LAMP
1311	3-733-608-01	o	COVER, MC UNDER
1312	3-733-621-01	o	PANEL, BLANK
1313	3-733-626-01	o	COVER, S UNDER
1314	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
1315	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80

CHASSIS BLOCK (3), RIGHT SIDE AND REAR


1406
PWH3×6
PWH3×8
1406
to chassis
1405
PWH3×8
PWH3×6
1401
1404
PWH3×6
PWH3×6
1402
1403
B3×6
B3×6

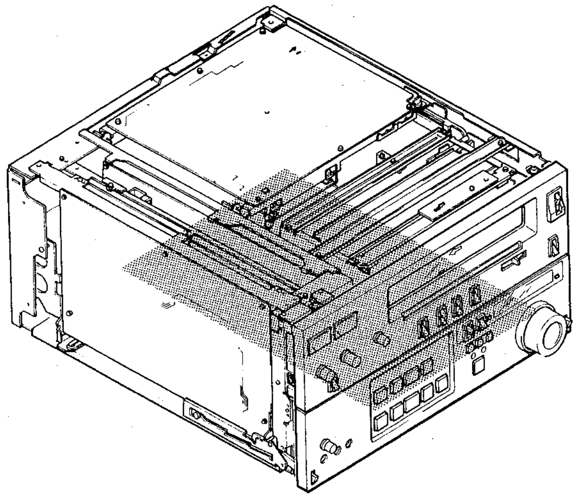
No.	Part No.	SP	Description
1401	A-6727-084-A	o	MOUNTED CIRCUIT BOARD, RP-40C
1402	⚠1-413-075-00	o	SWITCHING REGULATOR (UR-02)
1403	⚠1-560-222-11	s	INLET 3P
1404	1-622-221-21	o	PRINTED CIRCUIT BOARD, DC-31A
1405	3-646-090-00	s	RIVET, NYLON
1406	3-733-660-01	o	LID, RP SHIELD CASE

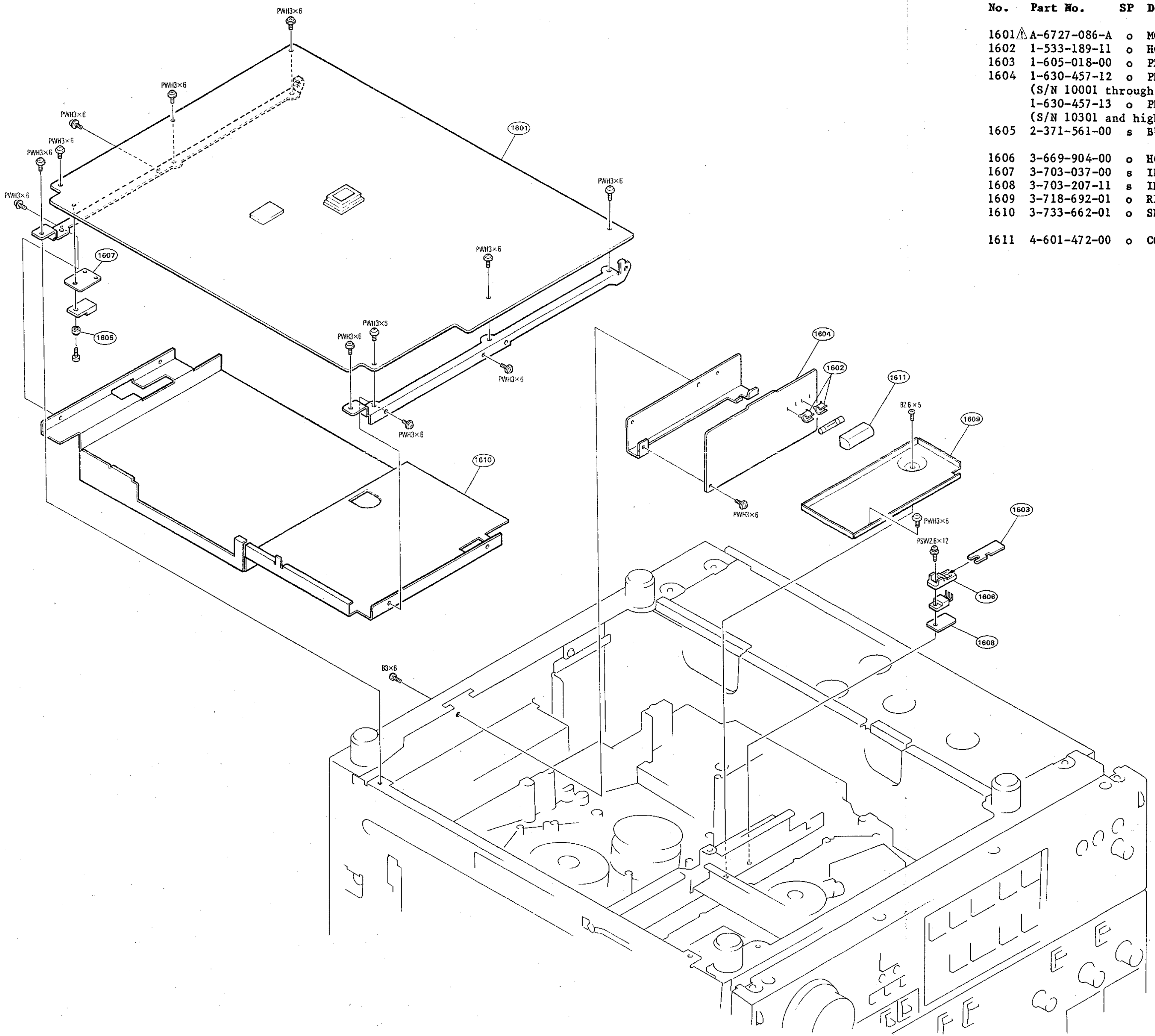
CONNECTOR PANEL


1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
B2.6×10
B2.6×4
B3×6
BVTT4×10
PWH3×6
P2.6×5

No.	Part No.	SP	Description
1501	A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
1502	1-507-467-00	s	1P PIN JACK
1503	1-561-045-00	s	CONNECTOR, (R-F)
1504	1-561-577-21	s	CONNECTOR (DIP TYPE) 8P
1505	1-561-655-00	s	CONNECTOR SOCKET, MINIATURE 9P
1506	1-562-227-21	s	RECEPTACLE, BNC
1507	1-563-029-21	s	CONNECTOR (RECEPTACLE) 3P
1508	1-563-030-21	s	CONNECTOR (RECEPTACLE) 3P
1509	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P
1510	1-571-083-21	s	SWITCH, SLIDE
1511	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1512	3-654-545-00	s	SPACER, BNC
1513	3-661-147-00	o	NUT, PLATE
1514	3-668-459-11	o	SCREW, CONNECTOR
1515	3-668-460-00	o	SPRING
1516	3-733-601-01	o	BRACKET, 9P
1517	3-733-627-01	o	COVER, IF
1518	3-733-641-01	o	BRACKET, XLR
1519	3-733-649-31	o	PANEL, REAR
1520	1-629-480-11	o	PRINTED CIRCUIT BOARD, DUS-271
1521	1-629-481-11	o	PRINTED CIRCUIT BOARD, CP-136
1522	1-554-423-00	s	SWITCH, SLIDE

CHASSIS BLOCK (4), BOTTOM




PWH3×6
PWH3×6
PWH3×6
PWH3×6
PWH3×6
PWH3×6
1601
PWH3×6
1607
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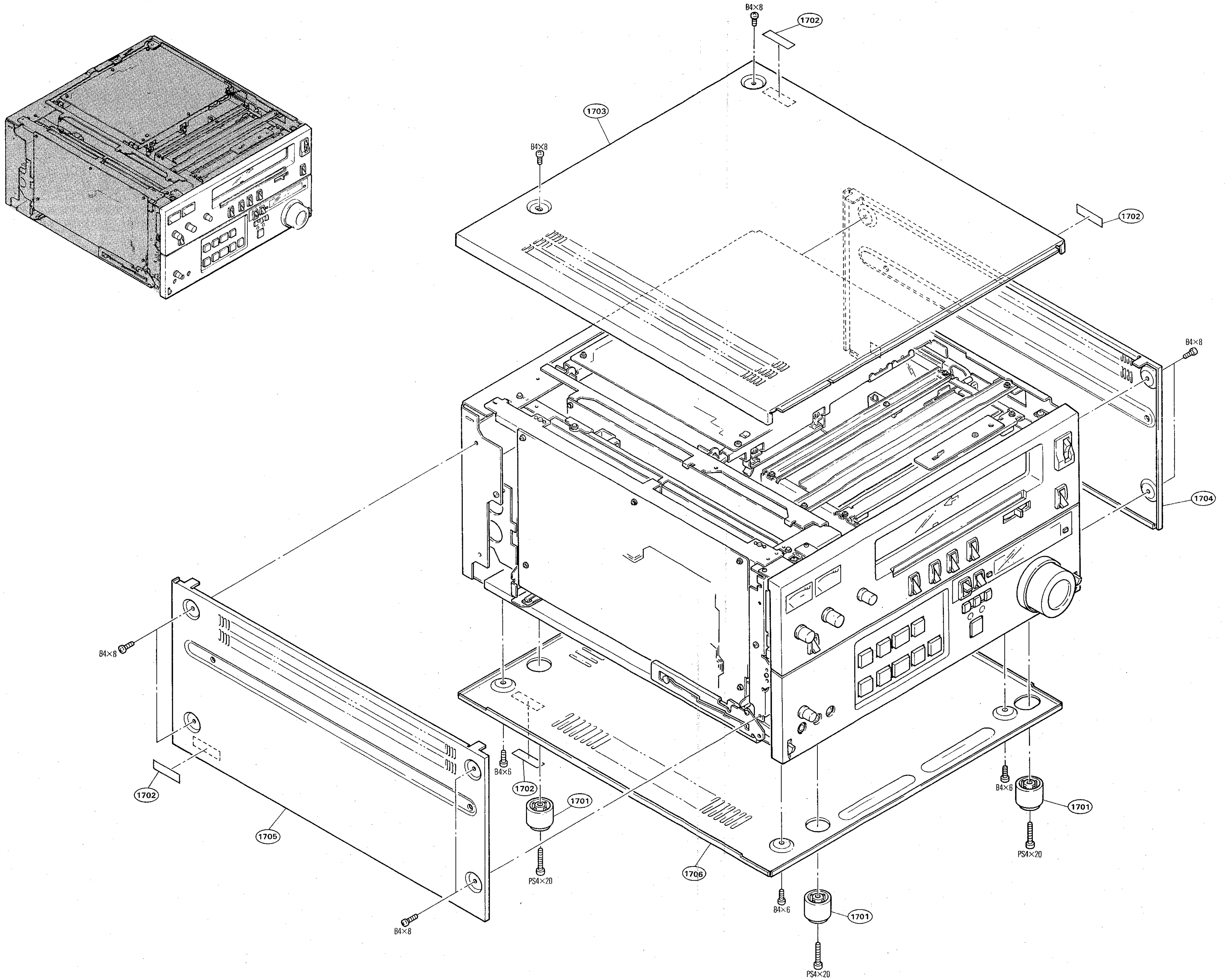
PWH3×6
PWH3×6
PWH3×6
PWH3×6
PWH3×6
1610
1604
1602
1611
B2.6×5
1609
PWH3×6
PWH3×6
1603
PSW2.6×12
1606
1608
B3×6

No.	Part No.	SP	Description
1601⚠	A-6727-086-A	o	MOUNTED CIRCUIT BOARD, SY-141C
1602	1-533-189-11	o	HOLDER, FUSE
1603	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
1604	1-630-457-12	o	PRINTED CIRCUIT BOARD, AC-98
	(S/N 10001 through 10300)		
	1-630-457-13	o	PRINTED CIRCUIT BOARD, AC-98
	(S/N 10301 and higher)		
1605	2-371-561-00	s	BUSHING (P), INSULATING
1606	3-669-904-00	o	HOLDER, PT
1607	3-703-037-00	s	INSULATOR, TO-220
1608	3-703-207-11	s	INSULATOR, TO-220
1609	3-718-692-01	o	RETAINER, V HARNESS
1610	3-733-662-01	o	SHIELD, SY
1611	4-601-472-00	o	COVER, FUSE

ORNAMENTAL PANEL


B4×8
1702
1703
B4×8
1702
B4×8
1704
B4×8
1702
1705
B4×8
B4×6
1702
1701
PS4×20
1706
B4×6
1701
PS4×20
B4×6
1701
PS4×20

No.	Part No.	SP	Description
1701	3-642-656-01	o	LEG
1702	3-703-079-31	s	LABEL, CAUTION (BACK)
1703	3-733-635-01	o	PANEL, TOP
1704	3-733-636-01	o	PANEL (RIGHT), SIDE
1705	3-733-637-01	o	PANEL (LEFT), SIDE
1706	3-733-638-01	o	PLATE, BOTTOM

16-3. ELECTRICAL PARTS LIST

CAPACITOR, MYLAR

Part No.	SP	Description
1-130-467-00	s	CAP, MYLAR 470pF 5% 50V
1-130-468-00	s	CAP, MYLAR 560pF 5% 50V
1-130-469-00	s	CAP, MYLAR 680pF 5% 50V
1-130-470-00	s	CAP, MYLAR 820pF 5% 50V
1-130-471-00	s	CAP, MYLAR 1000pF 5% 50V
1-130-472-00	s	CAP, MYLAR 1200pF 5% 50V
1-130-473-00	s	CAP, MYLAR 1500pF 5% 50V
1-130-474-00	s	CAP, MYLAR 1800pF 5% 50V
1-130-475-00	s	CAP, MYLAR 2200pF 5% 50V
1-130-476-00	s	CAP, MYLAR 2700pF 5% 50V
1-130-477-00	s	CAP, MYLAR 3300pF 5% 50V
1-130-478-00	s	CAP, MYLAR 3900pF 5% 50V
1-130-479-00	s	CAP, MYLAR 4700pF 5% 50V
1-130-480-00	s	CAP, MYLAR 5600pF 5% 50V
1-130-481-00	s	CAP, MYLAR 6800pF 5% 50V
1-130-482-00	s	CAP, MYLAR 8200pF 5% 50V
1-130-483-00	s	CAP, MYLAR 0.01 5% 50V
1-130-484-00	s	CAP, MYLAR 0.012 5% 50V
1-130-485-00	s	CAP, MYLAR 0.015 5% 50V
1-130-486-00	s	CAP, MYLAR 0.018 5% 50V
1-130-487-00	s	CAP, MYLAR 0.022 5% 50V
1-130-488-00	s	CAP, MYLAR 0.027 5% 50V
1-130-489-00	s	CAP, MYLAR 0.033 5% 50V
1-130-490-11	s	CAP, MYLAR 0.039 5% 50V
1-130-491-00	s	CAP, MYLAR 0.047 5% 50V
1-130-492-11	s	CAP, MYLAR 0.056 5% 50V
1-130-493-00	s	CAP, MYLAR 0.068 5% 50V
1-130-494-11	s	CAP, MYLAR 0.082 5% 50V
1-130-495-00	s	CAP, MYLAR 0.1 5% 50V
1-130-496-00	s	CAP, MYLAR 0.12 5% 50V
1-130-497-00	s	CAP, MYLAR 0.15 5% 50V
1-130-498-00	s	CAP, MYLAR 0.18 5% 50V
1-130-499-00	s	CAP, MYLAR 0.22 5% 50V
1-136-502-11	s	CAP, MYLAR 0.33 5% 50V

CAPACITOR, MICA, SILVERED

Part No.	SP	Description
1-107-019-00	s	CAP, MICA 1.0pF +-0.5pF 500V
1-107-039-00	s	CAP, MICA 1.2pF +-0.5pF 500V
1-107-040-00	s	CAP, MICA 1.5pF +-0.5pF 500V
1-107-041-00	s	CAP, MICA 1.8pF +-0.5pF 500V
1-107-042-00	s	CAP, MICA 2.2pF +-0.5pF 500V
1-107-043-00	s	CAP, MICA 2.7pF +-0.5pF 500V
1-107-044-00	s	CAP, MICA 3.3pF +-0.5pF 500V
1-107-045-00	s	CAP, MICA 3.9pF +-0.5pF 500V
1-107-046-00	s	CAP, MICA 4.7pF +-0.5pF 500V
1-107-026-00	s	CAP, MICA 5.1pF +-0.5pF 500V
1-107-047-00	s	CAP, MICA 5.6pF +-0.5pF 500V
1-107-048-00	s	CAP, MICA 6.8pF +-0.5pF 500V
1-107-049-00	s	CAP, MICA 8.2pF +-0.5pF 500V
1-107-202-00	s	CAP, MICA 10pF 5% 500V
1-107-203-00	s	CAP, MICA 11pF 5% 500V
1-107-204-00	s	CAP, MICA 12pF 5% 500V
1-107-205-00	s	CAP, MICA 13pF 5% 500V
1-107-206-00	s	CAP, MICA 15pF 5% 500V
1-107-207-00	s	CAP, MICA 16pF 5% 500V
1-107-208-00	s	CAP, MICA 18pF 5% 500V
1-107-209-00	s	CAP, MICA 20pF 5% 500V
1-107-210-00	s	CAP, MICA 22pF 5% 500V
1-107-211-00	s	CAP, MICA 24pF 5% 500V
1-107-157-00	s	CAP, MICA 27pF 5% 500V
1-107-158-00	s	CAP, MICA 30pF 5% 500V
1-107-159-00	s	CAP, MICA 33pF 5% 500V
1-107-074-00	s	CAP, MICA 36pF 5% 50V
1-107-075-00	s	CAP, MICA 39pF 5% 50V
1-107-076-00	s	CAP, MICA 43pF 5% 50V
1-107-077-00	s	CAP, MICA 47pF 5% 50V
1-107-164-00	s	CAP, MICA 51pF 5% 500V
1-107-165-00	s	CAP, MICA 56pF 5% 500V
1-107-166-00	s	CAP, MICA 62pF 5% 500V
1-107-036-00	s	CAP, MICA 68pF 5% 500V
1-107-167-00	s	CAP, MICA 75pF 5% 500V
1-107-083-00	s	CAP, MICA 82pF 5% 50V
1-107-084-00	s	CAP, MICA 91pF 5% 50V
1-107-085-00	s	CAP, MICA 100pF 5% 50V
1-107-086-00	s	CAP, MICA 110pF 5% 50V
1-107-087-00	s	CAP, MICA 120pF 5% 50V
1-109-538-00	s	CAP, MICA 130pF 5% 100V
1-109-539-00	s	CAP, MICA 150pF 5% 100V
1-107-090-00	s	CAP, MICA 160pF 5% 50V
1-109-540-00	s	CAP, MICA 180pF 5% 100V
1-109-541-00	s	CAP, MICA 200pF 5% 100V
1-109-542-00	s	CAP, MICA 220pF 5% 100V
1-109-545-00	s	CAP, MICA 270pF 5% 100V
1-109-547-00	s	CAP, MICA 330pF 5% 100V
1-109-549-00	s	CAP, MICA 390pF 5% 100V
1-109-633-00	s	CAP, MICA 470pF 2% 500V
1-109-555-00	s	CAP, MICA 560pF 5% 100V
1-109-635-00	s	CAP, MICA 470pF 2% 500V

RESISTOR, CARBON

Part No.	SP	Description
1-249-381-11	s	RES, CARBON 1.0 5% 1/4W
1-249-382-11	s	RES, CARBON 1.2 5% 1/4W
1-249-383-11	s	RES, CARBON 1.5 5% 1/4W
1-249-384-11	s	RES, CARBON 1.8 5% 1/4W
1-249-385-11	s	RES, CARBON 2.2 5% 1/4W
1-249-386-11	s	RES, CARBON 2.7 5% 1/4W
1-249-387-11	s	RES, CARBON 3.3 5% 1/4W
1-249-388-11	s	RES, CARBON 3.9 5% 1/4W
1-249-389-11	s	RES, CARBON 4.7 5% 1/4W
1-249-390-11	s	RES, CARBON 5.6 5% 1/4W
1-249-391-11	s	RES, CARBON 6.8 5% 1/4W
1-249-392-11	s	RES, CARBON 8.2 5% 1/4W
1-249-393-11	s	RES, CARBON 10 5% 1/4W
1-249-394-11	s	RES, CARBON 12 5% 1/4W
1-249-395-11	s	RES, CARBON 15 5% 1/4W
1-249-396-11	s	RES, CARBON 18 5% 1/4W
1-249-397-11	s	RES, CARBON 22 5% 1/4W
1-249-398-11	s	RES, CARBON 27 5% 1/4W
1-249-399-11	s	RES, CARBON 33 5% 1/4W
1-249-400-11	s	RES, CARBON 39 5% 1/4W
1-249-401-11	s	RES, CARBON 47 5% 1/4W
1-249-402-11	s	RES, CARBON 56 5% 1/4W
1-249-403-11	s	RES, CARBON 68 5% 1/4W
1-215-394-00	s	RES, METAL 75 1% 1/4W
1-249-404-11	s	RES, CARBON 82 5% 1/4W
1-249-405-11	s	RES, CARBON 100 5% 1/4W
1-249-406-11	s	RES, CARBON 120 5% 1/4W
1-249-407-11	s	RES, CARBON 150 5% 1/4W
1-249-408-11	s	RES, CARBON 180 5% 1/4W
1-249-409-11	s	RES, CARBON 220 5% 1/4W
1-249-410-11	s	RES, CARBON 270 5% 1/4W
1-249-411-11	s	RES, CARBON 330 5% 1/4W
1-249-412-11	s	RES, CARBON 390 5% 1/4W
1-249-413-11	s	RES, CARBON 470 5% 1/4W
1-249-414-11	s	RES, CARBON 560 5% 1/4W
1-249-415-11	s	RES, CARBON 680 5% 1/4W
1-249-416-11	s	RES, CARBON 820 5% 1/4W
1-249-417-11	s	RES, CARBON 1.0k 5% 1/4W
1-249-418-11	s	RES, CARBON 1.2k 5% 1/4W
1-249-419-11	s	RES, CARBON 1.5k 5% 1/4W
1-249-420-11	s	RES, CARBON 1.8k 5% 1/4W
1-249-421-11	s	RES, CARBON 2.2k 5% 1/4W
1-249-422-11	s	RES, CARBON 2.7k 5% 1/4W
1-249-423-11	s	RES, CARBON 3.3k 5% 1/4W
1-249-424-11	s	RES, CARBON 3.9k 5% 1/4W
1-249-425-11	s	RES, CARBON 4.7k 5% 1/4W
1-249-426-11	s	RES, CARBON 5.6k 5% 1/4W
1-249-427-11	s	RES, CARBON 6.8k 5% 1/4W
1-249-428-11	s	RES, CARBON 8.2k 5% 1/4W
1-249-429-11	s	RES, CARBON 10k 5% 1/4W
1-249-430-11	s	RES, CARBON 12k 5% 1/4W
1-249-431-11	s	RES, CARBON 15k 5% 1/4W
1-249-432-11	s	RES, CARBON 18k 5% 1/4W
1-249-433-11	s	RES, CARBON 22k 5% 1/4W
1-249-434-11	s	RES, CARBON 27k 5% 1/4W
1-249-435-11	s	RES, CARBON 33k 5% 1/4W
1-249-436-11	s	RES, CARBON 39k 5% 1/4W
1-249-437-11	s	RES, CARBON 47k 5% 1/4W
1-249-438-11	s	RES, CARBON 56k 5% 1/4W
1-249-439-11	s	RES, CARBON 68k 5% 1/4W

(RESISTOR, CARBON)

Part No.	SP	Description
1-249-440-11	s	RES, CARBON 82k 5% 1/4W
1-249-441-11	s	RES, CARBON 100k 5% 1/4W
1-215-471-00	s	RES, METAL 120k 1% 1/4W
1-215-473-00	s	RES, METAL 150k 1% 1/4W
1-215-475-00	s	RES, METAL 180k 1% 1/4W
1-215-477-00	s	RES, METAL 220k 1% 1/4W
1-215-479-00	s	RES, METAL 270k 1% 1/4W
1-215-481-00	s	RES, METAL 330k 1% 1/4W
1-215-483-00	s	RES, METAL 390k 1% 1/4W
1-215-485-00	s	RES, METAL 470k 1% 1/4W
1-215-487-00	s	RES, METAL 560k 1% 1/4W
1-215-489-00	s	RES, METAL 680k 1% 1/4W
1-215-491-00	s	RES, METAL 820k 1% 1/4W
1-215-493-00	s	RES, METAL 1.0M 1% 1/4W

RESISTOR, METAL

Part No.	SP	Description
1-215-373-31	s	RES, METAL 10 1% 1/6W
1-215-374-00	s	RES, METAL 11 1% 1/6W
1-215-375-00	s	RES, METAL 12 1% 1/6W
1-215-376-00	s	RES, METAL 13 1% 1/6W
1-215-377-00	s	RES, METAL 15 1% 1/6W
1-215-378-00	s	RES, METAL 16 1% 1/6W
1-215-379-00	s	RES, METAL 18 1% 1/6W
1-215-380-00	s	RES, METAL 20 1% 1/6W
1-215-381-00	s	RES, METAL 22 1% 1/6W
1-215-382-00	s	RES, METAL 24 1% 1/6W
1-215-383-00	s	RES, METAL 27 1% 1/6W
1-215-384-00	s	RES, METAL 30 1% 1/6W
1-215-385-00	s	RES, METAL 33 1% 1/6W
1-215-386-00	s	RES, METAL 36 1% 1/6W
1-215-387-00	s	RES, METAL 39 1% 1/6W
1-215-388-00	s	RES, METAL 43 1% 1/6W
1-215-389-00	s	RES, METAL 47 1% 1/6W
1-215-390-00	s	RES, METAL 51 1% 1/6W
1-215-391-00	s	RES, METAL 56 1% 1/6W
1-215-392-00	s	RES, METAL 62 1% 1/6W
1-215-393-00	s	RES, METAL 68 1% 1/6W
1-215-394-00	s	RES, METAL 75 1% 1/6W
1-215-395-00	s	RES, METAL 82 1% 1/6W
1-215-396-00	s	RES, METAL 91 1% 1/6W
1-215-397-00	s	RES, METAL 100 1% 1/6W
1-215-398-00	s	RES, METAL 110 1% 1/6W
1-215-399-00	s	RES, METAL 120 1% 1/6W
1-215-400-00	s	RES, METAL 130 1% 1/6W
1-215-401-00	s	RES, METAL 150 1% 1/6W
1-215-402-00	s	RES, METAL 160 1% 1/6W
1-215-403-00	s	RES, METAL 180 1% 1/6W
1-215-404-00	s	RES, METAL 200 1% 1/6W
1-215-405-00	s	RES, METAL 220 1% 1/6W
1-215-406-00	s	RES, METAL 240 1% 1/6W
1-215-407-00	s	RES, METAL 270 1% 1/6W
1-215-408-00	s	RES, METAL 300 1% 1/6W
1-215-409-00	s	RES, METAL 330 1% 1/6W
1-215-410-00	s	RES, METAL 360 1% 1/6W
1-215-411-00	s	RES, METAL 390 1% 1/6W
1-215-412-00	s	RES, METAL 430 1% 1/6W
1-215-413-00	s	RES, METAL 470 1% 1/6W
1-215-414-00	s	RES, METAL 510 1% 1/6W
1-215-415-00	s	RES, METAL 560 1% 1/6W
1-215-416-00	s	RES, METAL 620 1% 1/6W
1-215-417-00	s	RES, METAL 680 1% 1/6W
1-215-418-00	s	RES, METAL 750 1% 1/6W
1-215-419-00	s	RES, METAL 820 1% 1/6W
1-215-420-00	s	RES, METAL 910 1% 1/6W
1-215-421-00	s	RES, METAL 1.0k 1% 1/6W
1-215-422-00	s	RES, METAL 1.1k 1% 1/6W
1-215-423-00	s	RES, METAL 1.2k 1% 1/6W
1-215-424-00	s	RES, METAL 1.3k 1% 1/6W
1-215-425-00	s	RES, METAL 1.5k 1% 1/6W
1-215-426-00	s	RES, METAL 1.6k 1% 1/6W
1-215-427-00	s	RES, METAL 1.8k 1% 1/6W
1-215-428-00	s	RES, METAL 2.0k 1% 1/6W
1-215-429-00	s	RES, METAL 2.2k 1% 1/6W
1-215-430-00	s	RES, METAL 2.4k 1% 1/6W
1-215-431-00	s	RES, METAL 2.7k 1% 1/6W
1-215-432-00	s	RES, METAL 3.0k 1% 1/6W

(RESISTOR, METAL)

Part No.	SP	Description
1-215-433-00	s	RES, METAL 3.3k 1% 1/6W
1-215-434-00	s	RES, METAL 3.6k 1% 1/6W
1-215-435-00	s	RES, METAL 3.9k 1% 1/6W
1-215-436-00	s	RES, METAL 4.3k 1% 1/6W
1-215-437-00	s	RES, METAL 4.7k 1% 1/6W
1-215-438-00	s	RES, METAL 5.1k 1% 1/6W
1-215-439-00	s	RES, METAL 5.6k 1% 1/6W
1-215-440-00	s	RES, METAL 6.2k 1% 1/6W
1-215-441-00	s	RES, METAL 6.8k 1% 1/6W
1-215-442-00	s	RES, METAL 7.5k 1% 1/6W
1-215-443-00	s	RES, METAL 8.2k 1% 1/6W
1-215-444-00	s	RES, METAL 9.1k 1% 1/6W
1-215-445-00	s	RES, METAL 10k 1% 1/6W
1-215-446-00	s	RES, METAL 11k 1% 1/6W
1-215-447-00	s	RES, METAL 12k 1% 1/6W
1-215-448-00	s	RES, METAL 13k 1% 1/6W
1-215-449-00	s	RES, METAL 15k 1% 1/6W
1-215-450-00	s	RES, METAL 16k 1% 1/6W
1-215-451-00	s	RES, METAL 18k 1% 1/6W
1-215-452-00	s	RES, METAL 20k 1% 1/6W
1-215-453-00	s	RES, METAL 22k 1% 1/6W
1-215-454-00	s	RES, METAL 24k 1% 1/6W
1-215-455-00	s	RES, METAL 27k 1% 1/6W
1-215-456-00	s	RES, METAL 30k 1% 1/6W
1-215-457-00	s	RES, METAL 33k 1% 1/6W
1-215-458-00	s	RES, METAL 36k 1% 1/6W
1-215-459-00	s	RES, METAL 39k 1% 1/6W
1-215-460-00	s	RES, METAL 43k 1% 1/6W
1-215-461-00	s	RES, METAL 47k 1% 1/6W
1-215-462-00	s	RES, METAL 51k 1% 1/6W
1-215-463-00	s	RES, METAL 56k 1% 1/6W
1-215-464-00	s	RES, METAL 62k 1% 1/6W
1-215-465-00	s	RES, METAL 68k 1% 1/6W
1-215-466-00	s	RES, METAL 75k 1% 1/6W
1-215-467-00	s	RES, METAL 82k 1% 1/6W
1-215-468-00	s	RES, METAL 91k 1% 1/6W
1-215-469-00	s	RES, METAL 100k 1% 1/6W
1-215-470-00	s	RES, METAL 110k 1% 1/6W
1-215-471-00	s	RES, METAL 120k 1% 1/6W
1-215-472-00	s	RES, METAL 130k 1% 1/6W
1-215-473-00	s	RES, METAL 150k 1% 1/6W
1-215-474-00	s	RES, METAL 160k 1% 1/6W
1-215-475-00	s	RES, METAL 180k 1% 1/6W
1-215-476-00	s	RES, METAL 200k 1% 1/6W
1-215-477-00	s	RES, METAL 220k 1% 1/6W
1-215-478-00	s	RES, METAL 240k 1% 1/6W
1-215-479-00	s	RES, METAL 270k 1% 1/6W
1-215-480-00	s	RES, METAL 300k 1% 1/6W
1-215-481-00	s	RES, METAL 330k 1% 1/6W
1-215-482-00	s	RES, METAL 360k 1% 1/6W
1-215-483-00	s	RES, METAL 390k 1% 1/6W
1-215-484-00	s	RES, METAL 430k 1% 1/6W
1-215-485-00	s	RES, METAL 470k 1% 1/6W
1-215-486-00	s	RES, METAL 510k 1% 1/6W
1-215-487-00	s	RES, METAL 560k 1% 1/6W
1-215-488-00	s	RES, METAL 620k 1% 1/6W
1-215-489-00	s	RES, METAL 680k 1% 1/6W
1-215-490-00	s	RES, METAL 750k 1% 1/6W
1-215-491-00	s	RES, METAL 820k 1% 1/6W
1-215-492-00	s	RES, METAL 910k 1% 1/6W

(RESISTOR, METAL)

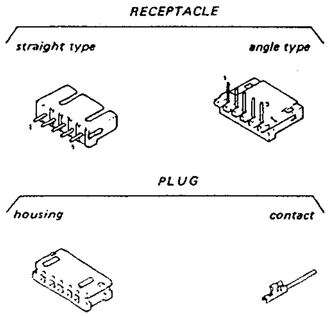
Part No.	SP	Description
1-215-493-00	s	RES, METAL 1.0M 1% 1/6W

CONNECTOR

Part No.	SP	Description	
1-506-467-11	o	RECEPTACLE	2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RECEPTACLE	2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING	2P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-468-11	o	RECEPTACLE	3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE	3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING	3P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-469-11	o	RECEPTACLE	4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RECEPTACLE	4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING	4P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-470-11	o	RECEPTACLE	5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE	5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING	5P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-471-31	o	RECEPTACLE	6P MALE (STRAIGHT TYPE)
1-506-485-11	o	RECEPTACLE	6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING	6P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-472-11	o	RECEPTACLE	7P MALE (STRAIGHT TYPE)
1-506-486-11	o	RECEPTACLE	7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING	7P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-473-11	o	RECEPTACLE	8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE	8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING	8P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-474-11	o	RECEPTACLE	9P MALE (STRAIGHT TYPE)
1-506-488-11	o	RECEPTACLE	9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING	9P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-475-11	o	RECEPTACLE	10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE	10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING	10P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-476-11	o	RECEPTACLE	11P MALE (STRAIGHT TYPE)
1-506-490-21	o	RECEPTACLE	11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING	11P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-477-11	o	RECEPTACLE	12P MALE (STRAIGHT TYPE)
1-506-491-11	o	RECEPTACLE	12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING	12P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-478-11	o	RECEPTACLE	13P MALE (STRAIGHT TYPE)
1-506-492-11	o	RECEPTACLE	13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING	13P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32

(CONNECTOR)

Part No.	SP	Description
1-506-479-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-480-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32



INDUCTOR, MICRO

Part No.	SP	Description
1-408-397-00	s	INDUCTOR, MICRO 1.0 5%
1-408-399-00	s	INDUCTOR, MICRO 1.5 5%
1-408-400-00	s	INDUCTOR, MICRO 1.8 5%
1-408-401-00	s	INDUCTOR, MICRO 2.2 5%
1-408-403-00	s	INDUCTOR, MICRO 3.3 5%
1-408-404-00	s	INDUCTOR, MICRO 3.9 5%
1-408-405-00	s	INDUCTOR, MICRO 4.7 5%
1-408-406-00	s	INDUCTOR, MICRO 5.6 5%
1-408-407-00	s	INDUCTOR, MICRO 6.8 5%
1-408-408-00	s	INDUCTOR, MICRO 8.2 5%
1-408-409-00	s	INDUCTOR, MICRO 10 5%
1-408-410-00	s	INDUCTOR, MICRO 12 5%
1-408-411-00	s	INDUCTOR, MICRO 15 5%
1-408-412-00	s	INDUCTOR, MICRO 18 5%
1-408-413-00	s	INDUCTOR, MICRO 22 5%
1-408-414-00	s	INDUCTOR, MICRO 27 5%
1-408-415-00	s	INDUCTOR, MICRO 33 5%
1-408-416-00	s	INDUCTOR, MICRO 39 5%
1-408-417-00	s	INDUCTOR, MICRO 47 5%
1-408-418-00	s	INDUCTOR, MICRO 56 5%
1-408-419-00	s	INDUCTOR, MICRO 68 5%
1-408-420-00	s	INDUCTOR, MICRO 82 5%
1-408-421-00	s	INDUCTOR, MICRO 100 5%
1-408-422-00	s	INDUCTOR, MICRO 120 5%
1-408-423-00	s	INDUCTOR, MICRO 150 5%
1-408-424-00	s	INDUCTOR, MICRO 180 5%
1-408-425-00	s	INDUCTOR, MICRO 220 5%
1-408-426-00	s	INDUCTOR, MICRO 270 5%
1-408-427-00	s	INDUCTOR, MICRO 330 5%
1-408-428-00	s	INDUCTOR, MICRO 390 5%
1-408-429-00	s	INDUCTOR, MICRO 470 5%
1-410-116-11	s	INDUCTOR, MICRO 560 5%
1-410-492-11	s	INDUCTOR, MICRO 680 5%
1-410-493-11	s	INDUCTOR, MICRO 820 5%
1-410-494-11	s	INDUCTOR, MICRO 1000 5%

AA-16 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
C1	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C10	1-124-477-11	s	ELECT 47uF 20% 25V
C11	1-124-477-11	s	ELECT 47uF 20% 25V
C12	1-162-207-31	s	CERAMIC 22PF 5% 50V
C13	1-124-120-11	s	ELECT 220uF 20% 25V
C100	1-126-103-11	s	ELECT 470uF 20% 16V
C101	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C110	1-124-477-11	s	ELECT 47uF 20% 25V
C111	1-124-477-11	s	ELECT 47uF 20% 25V
C112	1-162-207-31	s	CERAMIC 22PF 5% 50V
C113	1-124-120-11	s	ELECT 220uF 20% 25V
C150	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D110	8-719-911-19	s	DIODE 1SS119
D111	8-719-911-19	s	DIODE 1SS119
D150	8-719-109-93	s	DIODE RD6.2ESB2
IC101	8-759-981-98	s	IC RC4560DD
PS1	⚠1-532-727-11	s	LINK, IC 0.25A
Q10	8-729-306-92	s	TRANSISTOR 2SD669A
Q11	8-729-304-92	s	TRANSISTOR 2SB649A
Q12	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q110	8-729-306-92	s	TRANSISTOR 2SD669A
Q111	8-729-304-92	s	TRANSISTOR 2SB649A
Q112	8-729-201-05	s	TRANSISTOR 2SC2878-B
R1	1-247-826-00	s	CARBON 620 5% 1/4W
R18	1-249-478-11	s	CARBON 2.2 5% 1/2W
R19	1-249-478-11	s	CARBON 2.2 5% 1/2W
R101	1-247-826-00	s	CARBON 620 5% 1/4W
R118	1-249-478-11	s	CARBON 2.2 5% 1/2W
R119	1-249-478-11	s	CARBON 2.2 5% 1/2W
T1	1-423-261-11	s	TRANSFORMER, INPUT
T10	1-427-586-11	s	TRANSFORMER, INPUT/OUTPUT
T101	1-423-261-11	s	TRANSFORMER, INPUT
T110	1-427-586-11	s	TRANSFORMER, INPUT/OUTPUT

AC-98 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-630-457-12	o	PRINTED CIRCUIT BOARD, AC-98 (S/N 10001 through 10300)
1pc	1-630-457-13	o	PRINTED CIRCUIT BOARD, AC-98 (S/N 10301 and higher)
2pcs	1-533-189-11	o	HOLDER, FUSE
C1	⚠1-136-527-12	s	FILM 0.47uF 20% 250V
C2	⚠1-136-527-12	s	FILM 0.47uF 20% 250V
C3	1-136-527-12	s	FILM 0.47uF 20% 250V
CN1000	⚠1-506-371-00	o	CONNECTOR, 2P, MALE
L1	⚠1-424-260-11	s	FILTER, LINE
L2	⚠1-424-260-11	s	FILTER, LINE
R1	1-214-937-00	s	METAL 1M 1% 1/2W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

AU-124A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-364-A	o	MOUNTED CIRCUIT BOARD, AU-124A
2pcs	3-646-090-00	s	RIVET, NYLON
2pcs	3-657-153-00	o	HINGE
2pcs	3-733-616-01	o	SHEET, INSULATING, AU
5pcs	7-682-903-11	s	SCREW +PWH 3X6
C1	1-124-477-11	s	ELECT 47uF 20% 25V
C2	1-123-875-11	s	ELECT 10uF 20% 50V
C3	1-124-477-11	s	ELECT 47uF 20% 25V
C10	1-126-101-11	s	ELECT 100uF 20% 16V
C11	1-123-875-11	s	ELECT 10uF 20% 50V
C12	1-124-477-11	s	ELECT 47uF 20% 25V
C13	1-124-443-00	s	ELECT 100uF 20% 10V
C14	1-162-199-31	s	CERAMIC 10PF 5% 50V
C15	1-123-875-11	s	ELECT 10uF 20% 50V
C16	1-123-875-11	s	ELECT 10uF 20% 50V
C19	1-123-875-11	s	ELECT 10uF 20% 50V
C20	1-123-875-11	s	ELECT 10uF 20% 50V
C22	1-123-875-11	s	ELECT 10uF 20% 50V
C51	1-124-477-11	s	ELECT 47uF 20% 25V
C52	1-124-477-11	s	ELECT 47uF 20% 25V
C53	1-123-875-11	s	ELECT 10uF 20% 50V
C54	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C56	1-124-477-11	s	ELECT 47uF 20% 25V
C57	1-123-875-11	s	ELECT 10uF 20% 50V
C58	1-123-875-11	s	ELECT 10uF 20% 50V
C59	1-124-443-00	s	ELECT 100uF 20% 10V
C60	1-124-477-11	s	ELECT 47uF 20% 25V
C61	1-124-120-11	s	ELECT 220uF 20% 25V
C62	1-124-120-11	s	ELECT 220uF 20% 25V
C63	1-126-101-11	s	ELECT 100uF 20% 16V
C64	1-123-875-11	s	ELECT 10uF 20% 50V
C65	1-124-443-00	s	ELECT 100uF 20% 10V
C66	1-124-477-11	s	ELECT 47uF 20% 25V
C69	1-124-120-11	s	ELECT 220uF 20% 25V
C70	1-124-477-11	s	ELECT 47uF 20% 25V
C71	1-124-477-11	s	ELECT 47uF 20% 25V
C72	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C101	1-123-332-00	s	ELECT 47uF 20% 25V
C102	1-162-286-31	s	CERAMIC 220PF 10% 50V
C103	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C104	1-123-356-00	s	ELECT 10uF 20% 50V
C105	1-124-443-00	s	ELECT 100uF 20% 10V
C107	1-123-875-11	s	ELECT 10uF 20% 50V
C108	1-124-477-11	s	ELECT 47uF 20% 25V
C112	1-123-875-11	s	ELECT 10uF 20% 50V
C113	1-123-875-11	s	ELECT 10uF 20% 50V
C151	1-109-621-00	s	MICA 220PF 1% 500V
C152	1-162-290-31	s	CERAMIC 470PF 10% 50V
C153	1-123-875-11	s	ELECT 10uF 20% 50V
C154	1-123-875-11	s	ELECT 10uF 20% 50V
C155	1-123-332-00	s	ELECT 47uF 20% 25V
C156	1-123-875-11	s	ELECT 10uF 20% 50V
C158	1-123-875-11	s	ELECT 10uF 20% 50V
C159	1-123-875-11	s	ELECT 10uF 20% 50V
C162	1-162-219-31	s	CERAMIC 68PF 5% 50V
C163	1-123-875-11	s	ELECT 10uF 20% 50V
C201	1-123-875-11	s	ELECT 10uF 20% 50V
C203	1-123-875-11	s	ELECT 10uF 20% 50V
C204	1-124-477-11	s	ELECT 47uF 20% 25V

(AU-124A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C205	1-123-875-11	s	ELECT 10uF 20% 50V
C207	1-124-477-11	s	ELECT 47uF 20% 25V
C208	1-126-101-11	s	ELECT 100uF 20% 16V
C209	1-123-875-11	s	ELECT 10uF 20% 50V
C210	1-124-477-11	s	ELECT 47uF 20% 25V
C211	1-124-443-00	s	ELECT 100uF 20% 10V
C212	1-162-199-31	s	CERAMIC 10PF 5% 50V
C213	1-123-875-11	s	ELECT 10uF 20% 50V
C214	1-123-875-11	s	ELECT 10uF 20% 50V
C217	1-123-875-11	s	ELECT 10uF 20% 50V
C245	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C251	1-124-477-11	s	ELECT 47uF 20% 25V
C252	1-124-477-11	s	ELECT 47uF 20% 25V
C253	1-123-875-11	s	ELECT 10uF 20% 50V
C255	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C301	1-123-332-00	s	ELECT 47uF 20% 25V
C303	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C304	1-162-286-31	s	CERAMIC 220PF 10% 50V
C307	1-123-875-11	s	ELECT 10uF 20% 50V
C309	1-123-356-00	s	ELECT 10uF 20% 50V
C310	1-126-101-11	s	ELECT 100uF 20% 16V
C311	1-124-443-00	s	ELECT 100uF 20% 10V
C313	1-123-875-11	s	ELECT 10uF 20% 50V
C314	1-124-477-11	s	ELECT 47uF 20% 25V
C318	1-123-875-11	s	ELECT 10uF 20% 50V
C319	1-123-875-11	s	ELECT 10uF 20% 50V
C321	1-124-477-11	s	ELECT 47uF 20% 25V
C351	1-109-621-00	s	MICA 220PF 1% 500V
C352	1-162-290-31	s	CERAMIC 470PF 10% 50V
C353	1-123-875-11	s	ELECT 10uF 20% 50V
C354	1-123-875-11	s	ELECT 10uF 20% 50V
C355	1-123-332-00	s	ELECT 47uF 20% 25V
C356	1-123-875-11	s	ELECT 10uF 20% 50V
C358	1-123-875-11	s	ELECT 10uF 20% 50V
C361	1-162-219-31	s	CERAMIC 68PF 5% 50V
C362	1-123-875-11	s	ELECT 10uF 20% 50V
C363	1-123-875-11	s	ELECT 10uF 20% 50V
C401	1-123-875-11	s	ELECT 10uF 20% 50V
C402	1-123-875-11	s	ELECT 10uF 20% 50V
C403	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C404	1-124-925-11	s	ELECT 2.2uF 20% 100V
C451	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C452	1-123-875-11	s	ELECT 10uF 20% 50V
C453	1-123-875-11	s	ELECT 10uF 20% 50V
C454	1-123-875-11	s	ELECT 10uF 20% 50V
C501	1-126-101-11	s	ELECT 100uF 20% 16V
C502	1-124-477-11	s	ELECT 47uF 20% 25V
C503	1-124-477-11	s	ELECT 47uF 20% 25V
C504	1-124-360-00	s	ELECT 1000uF 20% 16V
C601	1-123-875-11	s	ELECT 10uF 20% 50V
C602	1-124-482-11	s	ELECT 33uF 20% 35V
C603	1-124-477-11	s	ELECT 47uF 20% 25V
C604	1-126-101-11	s	ELECT 100uF 20% 16V
C605	1-109-627-00	s	MICA 150PF 2% 500V
C606	1-109-627-00	s	MICA 150PF 2% 500V
C607	1-123-875-11	s	ELECT 10uF 20% 50V
C608	1-123-875-11	s	ELECT 10uF 20% 50V
C609	1-124-477-11	s	ELECT 47uF 20% 25V
C614	1-124-477-11	s	ELECT 47uF 20% 25V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN202	1-506-471-11	s	CONNECTOR, 6P, MALE
CN206	1-506-471-11	s	CONNECTOR, 6P, MALE
CN209	1-506-471-11	o	CONNECTOR, 6P, MALE
CN218	1-506-471-11	o	CONNECTOR, 6P, MALE
CP601	1-464-805-11	s	OSCILLATOR, BIAS
CP602	1-464-805-11	s	OSCILLATOR, BIAS
D2	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D7	8-729-105-68	s	TRANSISTOR 2SC3356-K
D8	8-729-105-68	s	TRANSISTOR 2SC3356-K
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D51	8-719-911-19	s	DIODE 1SS119
D52	8-719-911-19	s	DIODE 1SS119
D53	8-719-911-19	s	DIODE 1SS119
D54	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-729-105-68	s	TRANSISTOR 2SC3356-K
D151	8-729-105-68	s	TRANSISTOR 2SC3356-K
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-729-105-68	s	TRANSISTOR 2SC3356-K
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D251	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D351	8-729-105-68	s	TRANSISTOR 2SC3356-K
D401	8-729-105-68	s	TRANSISTOR 2SC3356-K
D451	8-729-105-68	s	TRANSISTOR 2SC3356-K
D452	8-719-911-19	s	DIODE 1SS119
D501	8-729-105-68	s	TRANSISTOR 2SC3356-K
D502	8-719-911-19	s	DIODE 1SS119
D504	8-719-200-02	s	DIODE 10E2
D505	8-719-200-02	s	DIODE 10E2
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-109-51	s	DIODE RD2.0ES-B2
D601	8-719-109-66	s	DIODE RD3.3ES-B2
D602	8-719-200-02	s	DIODE 10E2
D603	8-719-200-02	s	DIODE 10E2
IC1	8-759-982-02	s	IC RC4562DD
IC2	8-759-208-10	s	IC TC4053BPHB
IC3	8-759-982-02	s	IC RC4562DD
IC51	8-759-802-46	s	IC LA4550
IC101	8-759-981-57	s	IC RC2043DD
IC102	8-759-982-02	s	IC RC4562DD
IC151	8-759-981-90	s	IC RC4558DD
IC202	8-759-208-10	s	IC TC4053BPHB
IC351	8-759-981-90	s	IC RC4558DD
IC401	8-759-240-11	s	IC TC4011BP
L1	1-407-519-00	s	INDUCTOR 8uH
L201	1-407-519-00	s	INDUCTOR 8uH

(AU-124A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
LV102	1-410-856-12	s	COIL, VAR 22mH
LV151	1-410-856-12	s	COIL, VAR 22mH
LV152	1-410-856-12	s	COIL, VAR 22mH
LV301	1-410-856-12	s	COIL, VAR 22mH
LV302	1-410-856-12	s	COIL, VAR 22mH
LV351	1-410-856-12	s	COIL, VAR 22mH
LV352	1-410-856-12	s	COIL, VAR 22mH
LV601	1-407-283-00	s	INDUCTOR, VAR 0.68mH
LV602	1-410-859-11	s	COIL
Q3	8-729-119-78	s	TRANSISTOR 2SC2785
Q4	8-729-119-78	s	TRANSISTOR 2SC2785
Q5	8-729-119-78	s	TRANSISTOR 2SC2785
Q6	8-729-119-78	s	TRANSISTOR 2SC2785
Q7	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q8	8-729-119-78	s	TRANSISTOR 2SC2785
Q51	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q52	8-729-119-78	s	TRANSISTOR 2SC2785
Q53	8-729-119-78	s	TRANSISTOR 2SC2785
Q54	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q55	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q56	8-729-119-76	s	TRANSISTOR 2SA1175
Q101	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q102	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q103	8-729-119-76	s	TRANSISTOR 2SA1175
Q105	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q106	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q151	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q152	8-729-119-78	s	TRANSISTOR 2SC2785
Q153	8-729-119-78	s	TRANSISTOR 2SC2785
Q154	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-119-78	s	TRANSISTOR 2SC2785
Q202	8-729-119-78	s	TRANSISTOR 2SC2785
Q203	8-729-119-78	s	TRANSISTOR 2SC2785
Q204	8-729-119-78	s	TRANSISTOR 2SC2785
Q206	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q207	8-729-119-78	s	TRANSISTOR 2SC2785
Q209	8-729-119-76	s	TRANSISTOR 2SA1175
Q251	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q252	8-729-119-78	s	TRANSISTOR 2SC2785
Q301	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q302	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q303	8-729-119-76	s	TRANSISTOR 2SA1175
Q304	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q305	8-729-119-78	s	TRANSISTOR 2SC2785
Q306	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q351	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q352	8-729-119-78	s	TRANSISTOR 2SC2785
Q353	8-729-119-78	s	TRANSISTOR 2SC2785
Q354	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q401	8-729-119-78	s	TRANSISTOR 2SC2785
Q402	8-729-119-76	s	TRANSISTOR 2SA1175
Q403	8-729-119-76	s	TRANSISTOR 2SA1175
Q451	8-729-119-78	s	TRANSISTOR 2SC2785
Q452	8-729-119-76	s	TRANSISTOR 2SA1175
Q453	8-729-119-76	s	TRANSISTOR 2SA1175
Q501	8-729-119-78	s	TRANSISTOR 2SC2785
Q502	8-729-113-31	s	TRANSISTOR 2SB733-2
Q503	8-729-119-76	s	TRANSISTOR 2SA1175
Q601	8-729-201-05	s	TRANSISTOR 2SC2878-B

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(AU-124A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q602	8-729-119-76	s	TRANSISTOR 2SA1175
Q603	8-729-177-32	s	TRANSISTOR 2SD773
Q604	8-729-119-78	s	TRANSISTOR 2SC2785
Q605	8-729-900-65	s	TRANSISTOR DTA144ES
Q606	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q607	8-729-119-76	s	TRANSISTOR 2SA1175
Q608	8-729-177-32	s	TRANSISTOR 2SD773
R19	1-247-887-00	s	CARBON 220K 5% 1/4W
R40	1-247-891-00	s	CARBON 330K 5% 1/4W
R117	1-247-887-00	s	CARBON 220K 5% 1/4W
R124	1-247-881-00	s	CARBON 120K 5% 1/4W
R126	1-247-881-00	s	CARBON 120K 5% 1/4W
R159	1-247-883-00	s	CARBON 150K 5% 1/4W
R204	1-247-891-00	s	CARBON 330K 5% 1/4W
R216	1-247-887-00	s	CARBON 220K 5% 1/4W
R316	1-247-903-00	s	CARBON 1M 5% 1/4W
R321	1-247-887-00	s	CARBON 220K 5% 1/4W
R327	1-247-881-00	s	CARBON 120K 5% 1/4W
R329	1-247-881-00	s	CARBON 120K 5% 1/4W
R359	1-247-883-00	s	CARBON 150K 5% 1/4W
RV1	1-228-996-00	s	RES, ADJ, METAL 47K
RV51	1-228-990-00	s	RES, ADJ, METAL 1K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV103	1-228-994-00	s	RES, ADJ, METAL 10K
RV104	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV151	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV152	1-228-994-00	s	RES, ADJ, METAL 10K
RV153	1-228-998-00	s	RES, ADJ, METAL 220K
RV154	1-228-998-00	s	RES, ADJ, METAL 220K
RV201	1-228-996-00	s	RES, ADJ, METAL 47K
RV251	1-228-990-00	s	RES, ADJ, METAL 1K
RV301	1-228-994-00	s	RES, ADJ, METAL 10K
RV302	1-228-994-00	s	RES, ADJ, METAL 10K
RV303	1-228-994-00	s	RES, ADJ, METAL 10K
RV304	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV351	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV352	1-228-994-00	s	RES, ADJ, METAL 10K
RV353	1-228-998-00	s	RES, ADJ, METAL 220K
RV354	1-228-998-00	s	RES, ADJ, METAL 220K
RV601	1-228-997-00	s	RES, ADJ, METAL 100K
RV602	1-228-997-00	s	RES, ADJ, METAL 100K
RV603	1-228-995-00	s	RES, ADJ, METAL 22K
RV604	1-228-994-00	s	RES, ADJ, METAL 10K
RY601	1-515-614-11	s	RELAY

CC-36 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
R1	1-247-705-11	s	CARBON 270 5% 1/4W
R2	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R3	1-247-705-11	s	CARBON 270 5% 1/4W
R4	1-247-717-11	s	CARBON 2.2K 5% 1/4W

CC-37 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-627-573-12	o	PRINTED CIRCUIT BOARD, CC-37
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "CASSETTE IN DET"

CP-136 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-481-12	o	PRINTED CIRCUIT BOARD, CP-136

DC-31P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
4pcs	1-533-189-11	o	HOLDER, FUSE
1pc	1-561-424-11	o	HOUSING, 5P
1pc	1-561-432-00	o	CONTACT, FEMALE
1pc	1-622-221-21	o	PRINTED CIRCUIT BOARD, DC-31A
C1	1-124-479-11	s	ELECT 330uF 20% 25V
C2	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
IC1	8-759-938-15	s	IC BA178M05

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-72 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-087-A	o	MOUNTED CIRCUIT BOARD, DM-72
2pcs	3-646-090-00	s	RIVET, NYLON
2pcs	3-670-570-31	o	SPACER, SUPPORT
2pcs	3-683-631-01	o	CLAMP
2pcs	3-703-141-00	o	HOLDER, PCB
2pcs	3-710-565-01	o	HINGE, PRINTED CIRCUIT BOARD
6pcs	7-682-903-11	s	SCREW +PWH 3X6
C1	1-161-494-00	s	CERAMIC 0.022uF 25V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C4	1-124-589-11	s	ELECT 47uF 20% 16V
C5	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C8	1-124-360-00	s	ELECT 1000uF 20% 16V
C11	1-161-494-00	s	CERAMIC 0.022uF 25V
C16	1-161-494-00	s	CERAMIC 0.022uF 25V
C20	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C25	1-124-589-11	s	ELECT 47uF 20% 16V
C27	1-161-494-00	s	CERAMIC 0.022uF 25V
C28	1-161-494-00	s	CERAMIC 0.022uF 25V
C29	1-161-494-00	s	CERAMIC 0.022uF 25V
C31	1-124-589-11	s	ELECT 47uF 20% 16V
C32	1-161-494-00	s	CERAMIC 0.022uF 25V
C33	1-161-494-00	s	CERAMIC 0.022uF 25V
C35	1-161-494-00	s	CERAMIC 0.022uF 25V
C36	1-124-589-11	s	ELECT 47uF 20% 16V
C39	1-161-494-00	s	CERAMIC 0.022uF 25V
C40	1-162-726-11	s	CERAMIC 470PF 1% 50V
C43	1-124-443-00	s	ELECT 100uF 20% 10V
C45	1-124-443-00	s	ELECT 100uF 20% 10V
C46	1-124-443-00	s	ELECT 100uF 20% 10V
C47	1-124-443-00	s	ELECT 100uF 20% 10V
C51	1-124-443-00	s	ELECT 100uF 20% 10V
C52	1-124-443-00	s	ELECT 100uF 20% 10V
C54	1-124-443-00	s	ELECT 100uF 20% 10V
C57	1-124-443-00	s	ELECT 100uF 20% 10V
C59	1-162-732-11	s	CERAMIC 820PF 1% 50V
C60	1-124-589-11	s	ELECT 47uF 20% 16V
C62	1-124-589-11	s	ELECT 47uF 20% 16V
C63	1-161-494-00	s	CERAMIC 0.022uF 25V
C64	1-126-176-11	s	ELECT 220uF 20% 10V
C66	1-124-443-00	s	ELECT 100uF 20% 10V
C69	1-124-443-00	s	ELECT 100uF 20% 10V
C71	1-124-443-00	s	ELECT 100uF 20% 10V
C73	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C74	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C75	1-126-157-11	s	ELECT 10uF 20% 16V
C76	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C77	1-124-443-00	s	ELECT 100uF 20% 10V
C81	1-124-589-11	s	ELECT 47uF 20% 16V
C82	1-161-494-00	s	CERAMIC 0.022uF 25V
C83	1-126-176-11	s	ELECT 220uF 20% 10V
C86	1-126-176-11	s	ELECT 220uF 20% 10V
C89	1-124-443-00	s	ELECT 100uF 20% 10V
C93	1-126-101-11	s	ELECT 100uF 20% 16V
C94	1-161-494-00	s	CERAMIC 0.022uF 25V
C95	1-161-494-00	s	CERAMIC 0.022uF 25V
C96	1-162-889-11	s	CERAMIC 680PF 5% 50V

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C97	1-124-477-11	s	ELECT 47uF 20% 25V
C99	1-126-176-11	s	ELECT 220uF 20% 10V
C101	1-161-494-00	s	CERAMIC 0.022uF 25V
C102	1-162-710-11	s	CERAMIC 100PF 1% 50V
C103	1-162-724-11	s	CERAMIC 390PF 1% 50V
C104	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C106	1-161-494-00	s	CERAMIC 0.022uF 25V
C201	1-124-589-11	s	ELECT 47uF 20% 16V
C202	1-161-494-00	s	CERAMIC 0.022uF 25V
C203	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C205	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C209	1-126-094-11	s	ELECT 4.7uF 20% 35V
C210	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C212	1-124-438-00	s	ELECT 1uF 20% 50V
C213	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C215	1-124-589-11	s	ELECT 47uF 20% 16V
C216	1-161-494-00	s	CERAMIC 0.022uF 25V
C217	1-161-494-00	s	CERAMIC 0.022uF 25V
C218	1-124-589-11	s	ELECT 47uF 20% 16V
C219	1-124-589-11	s	ELECT 47uF 20% 16V
C220	1-124-443-00	s	ELECT 100uF 20% 10V
C221	1-124-443-00	s	ELECT 100uF 20% 10V
C222	1-161-494-00	s	CERAMIC 0.022uF 25V
C223	1-161-494-00	s	CERAMIC 0.022uF 25V
C301	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C302	1-161-494-00	s	CERAMIC 0.022uF 25V
C303	1-124-589-11	s	ELECT 47uF 20% 16V
C304	1-162-726-11	s	CERAMIC 470PF 1% 50V
C305	1-124-438-00	s	ELECT 1uF 20% 50V
C350	1-124-589-11	s	ELECT 47uF 20% 16V
C351	1-124-360-00	s	ELECT 1000uF 20% 16V
C401	1-124-589-11	s	ELECT 47uF 20% 16V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C403	1-124-443-00	s	ELECT 100uF 20% 10V
C404	1-124-589-11	s	ELECT 47uF 20% 16V
C405	1-124-589-11	s	ELECT 47uF 20% 16V
C406	1-161-494-00	s	CERAMIC 0.022uF 25V
C407	1-161-494-00	s	CERAMIC 0.022uF 25V
C408	1-126-157-11	s	ELECT 10uF 20% 16V
C409	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C411	1-124-589-11	s	ELECT 47uF 20% 16V
C412	1-124-589-11	s	ELECT 47uF 20% 16V
C413	1-126-103-11	s	ELECT 470uF 20% 16V
C414	1-161-494-00	s	CERAMIC 0.022uF 25V
C415	1-124-443-00	s	ELECT 100uF 20% 10V
C416	1-124-589-11	s	ELECT 47uF 20% 16V
C417	1-124-443-00	s	ELECT 100uF 20% 10V
C418	1-124-589-11	s	ELECT 47uF 20% 16V
C426	1-124-893-11	s	ELECT 2200uF 20% 10V
C427	1-124-473-11	s	ELECT 1000uF 20% 10V
C428	1-124-473-11	s	ELECT 1000uF 20% 10V
C429	1-161-494-00	s	CERAMIC 0.022uF 25V
C431	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C501	1-126-101-11	s	ELECT 100uF 20% 16V
C502	1-161-494-00	s	CERAMIC 0.022uF 25V
C505	1-124-438-00	s	ELECT 1uF 20% 50V
C506	1-124-257-00	s	ELECT 2.2uF 20% 50V
C508	1-124-589-11	s	ELECT 47uF 20% 16V
C509	1-124-443-00	s	ELECT 100uF 20% 10V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C510	1-124-257-00	s	ELECT 2.2uF 20% 50V
C513	1-124-438-00	s	ELECT 1uF 20% 50V
C514	1-124-438-00	s	ELECT 1uF 20% 50V
C516	1-124-589-11	s	ELECT 47uF 20% 16V
C517	1-161-494-00	s	CERAMIC 0.022uF 25V
C518	1-124-257-00	s	ELECT 2.2uF 20% 50V
C525	1-124-438-00	s	ELECT 1uF 20% 50V
C526	1-124-438-00	s	ELECT 1uF 20% 50V
C552	1-124-443-00	s	ELECT 100uF 20% 10V
C554	1-124-443-00	s	ELECT 100uF 20% 10V
C555	1-124-443-00	s	ELECT 100uF 20% 10V
C558	1-124-443-00	s	ELECT 100uF 20% 10V
C562	1-126-157-11	s	ELECT 10uF 20% 16V
C563	1-124-589-11	s	ELECT 47uF 20% 16V
C564	1-126-157-11	s	ELECT 10uF 20% 16V
C570	1-124-443-00	s	ELECT 100uF 20% 10V
C571	1-124-589-11	s	ELECT 47uF 20% 16V
C572	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C573	1-124-443-00	s	ELECT 100uF 20% 10V
C575	1-126-103-11	s	ELECT 470uF 20% 16V
C576	1-126-103-11	s	ELECT 470uF 20% 16V
C577	1-124-473-11	s	ELECT 1000uF 20% 10V
C581	1-161-494-00	s	CERAMIC 0.022uF 25V
C590	1-126-157-11	s	ELECT 10uF 20% 16V
C591	1-124-438-00	s	ELECT 1uF 20% 50V
C750	1-124-589-11	s	ELECT 47uF 20% 16V
C751	1-161-494-00	s	CERAMIC 0.022uF 25V
C754	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C801	1-161-494-00	s	CERAMIC 0.022uF 25V
C804	1-161-494-00	s	CERAMIC 0.022uF 25V
C805	1-162-733-11	s	CERAMIC 910PF 1% 50V
C811	1-162-718-11	s	CERAMIC 220PF 1% 50V
C813	1-124-443-00	s	ELECT 100uF 20% 10V
C814	1-161-494-00	s	CERAMIC 0.022uF 25V
C824	1-126-157-11	s	ELECT 10uF 20% 16V
C825	1-124-589-11	s	ELECT 47uF 20% 16V
C826	1-126-157-11	s	ELECT 10uF 20% 16V
C827	1-126-157-11	s	ELECT 10uF 20% 16V
C828	1-126-157-11	s	ELECT 10uF 20% 16V
C829	1-162-720-11	s	CERAMIC 270PF 1% 50V
C830	1-126-101-11	s	ELECT 100uF 20% 16V
C831	1-124-638-11	s	ELECT 22uF 20% 10V
C901	1-124-234-00	s	ELECT 22uF 20% 16V
CN101	1-506-471-11	s	CONNECTOR, 6P, MALE
CN111	1-506-471-11	o	CONNECTOR, 6P, MALE
CV1	1-141-227-00	s	CAP, TRIMMER 20PF
CV2	1-141-227-00	s	CAP, TRIMMER 20PF
CV702	1-141-297-11	s	CAP, TRIMMER 90PF
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D251	8-719-911-19	s	DIODE 1SS119
D252	8-719-911-19	s	DIODE 1SS119

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D350	8-719-109-72	s	DIODE RD3.9ES-B2
D351	8-719-109-72	s	DIODE RD3.9ES-B2
D401	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D560	8-719-101-97	s	DIODE 1SS97-1
D561	8-719-101-97	s	DIODE 1SS97-1
D813	8-719-109-44	s	DIODE 1SS99-1
D814	8-719-101-97	s	DIODE 1SS97-1
D815	8-719-101-97	s	DIODE 1SS97-1
D901	8-719-911-19	s	DIODE 1SS119
DL1	1-415-154-00	s	DELAY LINE 35nS
DL2	1-415-154-00	s	DELAY LINE 35nS
DL501	1-415-471-11	s	DELAY LINE 300nS
FL1	1-235-478-11	s	FILTER, HIGH-PASS
FL3	1-235-469-11	s	FILTER, LOW-PASS
FL4	1-235-475-12	s	FILTER, LOW-PASS
FL5	1-236-046-11	s	FILTER, LOW-PASS
FL201	1-235-469-11	s	FILTER, LOW-PASS
FL501	1-235-473-11	s	FILTER, LOW-PASS
FL502	1-235-011-21	s	FILTER, LOW-PASS
FL550	1-231-357-21	s	FILTER, LOW-PASS
FL801	1-235-010-21	s	FILTER, HIGH-PASS
IC1	8-751-340-10	s	IC CX134A
IC3	8-741-114-00	s	IC BX1140
IC4	8-751-350-10	s	IC CX135
IC5	8-759-208-10	s	IC TC4053BPHB
IC6	8-743-890-00	s	IC BX-389
IC7	8-749-901-13	s	IC BX-1249L
IC8	8-749-901-13	s	IC BX-1249L
IC9	8-759-981-91	s	IC RC4558DQ
IC10	8-752-006-12	s	IC CX20061
IC11	8-752-006-12	s	IC CX20061
IC12	8-749-900-93	s	IC BX-1471
IC13	8-759-982-21	s	IC RC78L05A
IC201	8-759-207-38	s	IC TA7374P
IC202	8-752-321-89	s	IC CXL5003P
IC203	8-759-982-25	s	IC RC78L09A
IC204	8-743-890-00	s	IC BX-389
IC251	8-741-124-80	s	IC BX1248
IC301	8-749-900-68	s	IC BX-1447L
IC302	1-808-692-11	s	IC FD-01
IC303	8-759-345-38	s	IC HD14538BP
IC401	8-743-880-00	s	IC BX-388
IC402	8-743-880-00	s	IC BX-388
IC403	8-759-208-10	s	IC TC4053BPHB
IC501	8-743-890-00	s	IC BX-389
IC502	8-752-006-12	s	IC CX20061
IC504	8-752-006-12	s	IC CX20061
IC550	8-752-006-12	s	IC CX20061
IC560	8-759-200-60	s	IC TA7060AP
IC570	8-743-880-00	s	IC BX-388
IC801	8-743-890-00	s	IC BX-389

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC806	8-759-200-60	s	IC TA7060AP
L1	1-410-482-31	s	INDUCTOR 100uH
L2	1-410-087-31	s	INDUCTOR 10mH
L3	1-410-471-11	s	INDUCTOR 12uH
L4	1-410-471-11	s	INDUCTOR 12uH
L5	1-410-087-31	s	INDUCTOR 10mH
L7	1-410-473-11	s	INDUCTOR 18uH
L9	1-410-092-31	s	INCUCTOR 27mH
L14	1-410-119-11	s	INDUCTOR 1mH
L15	1-410-482-31	s	INDUCTOR 100uH
L18	1-410-470-11	s	INDUCTOR 10uH
L19	1-410-468-11	s	INDUCTOR 6.8uH
L22	1-410-482-31	s	INDUCTOR 100uH
L24	1-410-482-31	s	INDUCTOR 100uH
L26	1-410-087-31	s	INDUCTOR 10mH
L28	1-410-482-31	s	INDUCTOR 100uH
L201	1-410-482-31	s	INDUCTOR 100uH
L202	1-410-482-31	s	INDUCTOR 100uH
L252	1-410-482-31	s	INDUCTOR 100uH
L301	1-410-482-31	s	INDUCTOR 100uH
L401	1-410-482-31	s	INDUCTOR 100uH
L402	1-410-482-31	s	INDUCTOR 100uH
L403	1-410-482-31	s	INDUCTOR 100uH
L504	1-410-119-11	s	INDUCTOR 1mH
L508	1-410-482-31	s	INDUCTOR 100uH
L509	1-410-482-31	s	INDUCTOR 100uH
L550	1-410-476-11	s	INDUCTOR 33uH
L562	1-410-087-31	s	INDUCTOR 10mH
L570	1-410-482-31	s	INDUCTOR 100uH
L715	1-410-482-31	s	INDUCTOR 100uH
L801	1-410-476-11	s	INDUCTOR 33uH
L802	1-410-478-11	s	INDUCTOR 47uH
L803	1-410-468-11	s	INDUCTOR 6.8uH
L804	1-410-470-11	s	INDUCTOR 10uH
L805	1-410-473-11	s	INDUCTOR 18uH
L811	1-410-087-31	s	INDUCTOR 10mH
LV1	1-407-572-00	s	COIL, VAR 33UH
LV301	1-407-565-00	s	COIL, VAR 2.2uH
LV501	1-407-268-00	s	INDUCTOR, VAR 1.5mH
Q1	8-729-603-50	s	TRANSISTOR 2SC403SP
Q2	8-729-603-50	s	TRANSISTOR 2SC403SP
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q4	8-729-119-76	s	TRANSISTOR 2SA1175
Q5	8-729-900-89	s	TRANSISTOR DTC144ES
Q6	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-603-50	s	TRANSISTOR 2SC403SP
Q9	8-729-603-50	s	TRANSISTOR 2SC403SP
Q10	8-729-900-89	s	TRANSISTOR DTC144ES
Q11	8-729-113-34	s	TRANSISTOR 2SB733-5
Q12	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q13	8-729-603-50	s	TRANSISTOR 2SC403SP
Q14	8-729-603-50	s	TRANSISTOR 2SC403SP
Q15	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q16	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q17	8-729-603-50	s	TRANSISTOR 2SC403SP
Q18	8-729-119-76	s	TRANSISTOR 2SA1175
Q19	8-729-603-50	s	TRANSISTOR 2SC403SP

(DM-72 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q20	8-729-603-50	s	TRANSISTOR 2SC403SP
Q21	8-729-603-50	s	TRANSISTOR 2SC403SP
Q22	8-729-603-50	s	TRANSISTOR 2SC403SP
Q23	8-729-603-50	s	TRANSISTOR 2SC403SP
Q24	8-729-603-50	s	TRANSISTOR 2SC403SP
Q25	8-729-105-72	s	TRANSISTOR 2SK523-L1
Q26	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q27	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q28	8-729-603-50	s	TRANSISTOR 2SC403SP
Q29	8-729-119-76	s	TRANSISTOR 2SA1175
Q30	8-729-603-50	s	TRANSISTOR 2SC403SP
Q31	8-729-603-50	s	TRANSISTOR 2SC403SP
Q32	8-729-603-50	s	TRANSISTOR 2SC403SP
Q33	8-729-603-50	s	TRANSISTOR 2SC403SP
Q34	8-729-603-50	s	TRANSISTOR 2SC403SP
Q35	8-729-603-50	s	TRANSISTOR 2SC403SP
Q36	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q37	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q38	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q40	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q41	8-729-900-89	s	TRANSISTOR DTC144ES
Q42	8-729-900-89	s	TRANSISTOR DTC144ES
Q43	8-729-603-50	s	TRANSISTOR 2SC403SP
Q44	8-729-603-50	s	TRANSISTOR 2SC403SP
Q45	8-729-900-89	s	TRANSISTOR DTC144ES
Q101	8-729-603-50	s	TRANSISTOR 2SC403SP
Q102	8-729-900-89	s	TRANSISTOR DTC144ES
Q103	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s	TRANSISTOR 2SC403SP
Q202	8-729-119-76	s	TRANSISTOR 2SA1175
Q301	8-729-900-89	s	TRANSISTOR DTC144ES
Q302	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q305	8-729-900-89	s	TRANSISTOR DTC144ES
Q306	8-729-900-89	s	TRANSISTOR DTC144ES
Q350	8-729-119-76	s	TRANSISTOR 2SA1175
Q351	8-729-113-34	s	TRANSISTOR 2SB733-5
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q402	8-729-603-50	s	TRANSISTOR 2SC403SP
Q403	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q404	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q405	8-729-603-50	s	TRANSISTOR 2SC403SP
Q406	8-729-275-42	s	TRANSISTOR 2SC2754
Q407	8-729-275-42	s	TRANSISTOR 2SC2754
Q408	8-729-900-89	s	TRANSISTOR DTC144ES
Q409	8-729-119-76	s	TRANSISTOR 2SA1175
Q410	8-729-119-76	s	TRANSISTOR 2SA1175
Q411	8-729-119-76	s	TRANSISTOR 2SA1175
Q412	8-729-119-76	s	TRANSISTOR 2SA1175
Q413	8-729-900-89	s	TRANSISTOR DTC144ES
Q414	8-729-900-89	s	TRANSISTOR DTC144ES
Q415	8-729-119-78	s	TRANSISTOR 2SC2785
Q416	8-729-900-89	s	TRANSISTOR DTC144ES
Q501	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q502	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q503	8-729-603-50	s	TRANSISTOR 2SC403SP
Q504	8-729-603-50	s	TRANSISTOR 2SC403SP
Q520	8-729-603-50	s	TRANSISTOR 2SC403SP
Q521	8-729-603-50	s	TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
Q522	8-729-603-50	s	TRANSISTOR 2SC403SP
Q523	8-729-119-76	s	TRANSISTOR 2SA1175
Q524	8-729-603-50	s	TRANSISTOR 2SC403SP
Q525	8-729-603-50	s	TRANSISTOR 2SC403SP
Q526	8-729-603-50	s	TRANSISTOR 2SC403SP
Q527	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q529	8-729-603-50	s	TRANSISTOR 2SC403SP
Q550	8-729-603-50	s	TRANSISTOR 2SC403SP
Q551	8-729-603-50	s	TRANSISTOR 2SC403SP
Q560	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q561	8-729-603-50	s	TRANSISTOR 2SC403SP
Q562	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q563	8-729-603-50	s	TRANSISTOR 2SC403SP
Q570	8-729-900-89	s	TRANSISTOR DTC144ES
Q571	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q572	8-729-900-89	s	TRANSISTOR DTC144ES
Q590	8-729-603-50	s	TRANSISTOR 2SC403SP
Q722	8-729-603-50	s	TRANSISTOR 2SC403SP
Q723	8-729-603-50	s	TRANSISTOR 2SC403SP
Q724	8-729-603-50	s	TRANSISTOR 2SC403SP
Q731	8-729-603-50	s	TRANSISTOR 2SC403SP
Q801	8-729-603-50	s	TRANSISTOR 2SC403SP
Q802	8-729-603-50	s	TRANSISTOR 2SC403SP
Q803	8-729-603-50	s	TRANSISTOR 2SC403SP
Q806	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q810	8-729-603-50	s	TRANSISTOR 2SC403SP
Q811	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q812	8-729-603-50	s	TRANSISTOR 2SC403SP
Q901	8-729-900-89	s	TRANSISTOR DTC144ES
R83	1-215-401-11	s	METAL 150 1% 1/6W
R97	1-247-887-00	s	CARBON 220K 5% 1/4W
R207	1-247-903-00	s	CARBON 1M 5% 1/4W
R575	1-247-848-11	s	CARBON 5.1K 5% 1/4W
RV1	1-228-990-00	s	RES, ADJ, METAL 1K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-990-00	s	RES, ADJ, METAL 1K
RV4	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV5	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV8	1-228-995-00	s	RES, ADJ, METAL 22K
RV9	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV10	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV11	1-226-702-00	s	RES, ADJ, METAL 2.2K
RV12	1-228-990-00	s	RES, ADJ, METAL 1K
RV13	1-228-995-00	s	RES, ADJ, METAL 22K
RV16	1-226-702-00	s	RES, ADJ, METAL 2.2K
RV17	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV201	1-228-989-00	s	RES, ADJ, METAL 470
RV251	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV301	1-228-996-00	s	RES, ADJ, METAL 47K
RV302	1-228-459-00	s	RES, ADJ, METAL 10K
RV401	1-226-771-11	s	RES, ADJ, METAL 1K
RV402	1-226-771-11	s	RES, ADJ, METAL 1K
RV403	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV502	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV503	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV504	1-228-990-00	s	RES, ADJ, METAL 1K
RV505	1-228-990-00	s	RES, ADJ, METAL 1K
RV506	1-228-990-00	s	RES, ADJ, METAL 1K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
RV551	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV810	1-228-993-00	s	RES, ADJ, METAL 4.7K
TH1	1-800-200-00	s	THERMISTOR S-3K
TH3	1-800-202-XX	s	THERMISTOR S-10K

DM-73 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-088-A	o	MOUNTED CIRCUIT BOARD, DM-73
C505	1-124-589-11	s	ELECT 47uF 20% 16V
C506	1-126-103-11	s	ELECT 470uF 20% 16V
C525	1-124-589-11	s	ELECT 47uF 20% 16V
C526	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C527	1-124-438-00	s	ELECT 1uF 20% 50V
C529	1-126-157-11	s	ELECT 10uF 20% 16V
C531	1-124-438-00	s	ELECT 1uF 20% 50V
C532	1-124-438-00	s	ELECT 1uF 20% 50V
C533	1-126-101-11	s	ELECT 100uF 20% 16V
C534	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C535	1-126-157-11	s	ELECT 10uF 20% 16V
C537	1-124-638-11	s	ELECT 22uF 20% 10V
C538	1-126-157-11	s	ELECT 10uF 20% 16V
C541	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C543	1-126-101-11	s	ELECT 100uF 20% 16V
C544	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C547	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C548	1-124-589-11	s	ELECT 47uF 20% 16V
C549	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C550	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C552	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C554	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C558	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C559	1-161-494-00	s	CERAMIC 0.022uF 25V
C560	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C561	1-131-379-00	s	TANTALUM 22uF 10% 10V
C562	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C563	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C564	1-131-379-00	s	TANTALUM 22uF 10% 10V
C565	1-126-157-11	s	ELECT 10uF 20% 16V
C567	1-126-101-11	s	ELECT 100uF 20% 16V
C568	1-162-724-11	s	CERAMIC 390PF 1% 50V
C571	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C572	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C573	1-124-438-00	s	ELECT 1uF 20% 50V
C575	1-124-589-11	s	ELECT 47uF 20% 16V
C576	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C578	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C579	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C580	1-124-589-11	s	ELECT 47uF 20% 16V
C582	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C585	1-131-343-00	s	TANTALUM 0.22uF 10% 35V
C587	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C588	1-124-589-11	s	ELECT 47uF 20% 16V
C589	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C591	1-124-589-11	s	ELECT 47uF 20% 16V
C592	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C595	1-124-589-11	s	ELECT 47uF 20% 16V
C596	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C598	1-124-257-00	s	ELECT 2.2uF 20% 50V
C599	1-162-726-11	s	CERAMIC 470PF 1% 50V
C600	1-162-889-11	s	CERAMIC 680PF 5% 50V
C601	1-124-438-00	s	ELECT 1uF 20% 50V
C610	1-124-589-11	s	ELECT 47uF 20% 16V
C611	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C613	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C616	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C617	1-126-157-11	s	ELECT 10uF 20% 16V
C618	1-162-726-11	s	CERAMIC 470PF 1% 50V
C620	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C629	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C630	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C631	1-124-589-11	s	ELECT 47uF 20% 16V
C632	1-124-589-11	s	ELECT 47uF 20% 16V
C634	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C635	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C636	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C637	1-124-589-11	s	ELECT 47uF 20% 16V
C638	1-126-157-11	s	ELECT 10uF 20% 16V
C639	1-124-120-11	s	ELECT 220uF 20% 25V
C640	1-124-589-11	s	ELECT 47uF 20% 16V
C641	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C642	1-126-157-11	s	ELECT 10uF 20% 16V
C643	1-126-157-11	s	ELECT 10uF 20% 16V
C645	1-126-157-11	s	ELECT 10uF 20% 16V
C646	1-126-157-11	s	ELECT 10uF 20% 16V
C648	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C649	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C650	1-124-589-11	s	ELECT 47uF 20% 16V
C705	1-102-108-00	s	CERAMIC 150PF 10% 50V
C706	1-162-888-11	s	CERAMIC 560PF 5% 50V
C708	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C712	1-131-353-00	s	TANTALUM 10uF 10% 35V
C713	1-126-101-11	s	ELECT 100uF 20% 16V
C721	1-124-589-11	s	ELECT 47uF 20% 16V
C726	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C727	1-124-589-11	s	ELECT 47uF 20% 16V
C728	1-126-157-11	s	ELECT 10uF 20% 16V
C729	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C734	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C735	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C736	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C737	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C738	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C758	1-124-438-00	s	ELECT 1uF 20% 50V
C759	1-124-438-00	s	ELECT 1uF 20% 50V
C760	1-124-438-00	s	ELECT 1uF 20% 50V
C761	1-126-157-11	s	ELECT 10uF 20% 16V
C762	1-126-157-11	s	ELECT 10uF 20% 16V
C764	1-124-438-00	s	ELECT 1uF 20% 50V
C765	1-126-157-11	s	ELECT 10uF 20% 16V
C766	1-163-012-00	s	CERAMIC 0.0018uF 10% 50V
C767	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C768	1-163-021-00	s	CERAMIC, CHIP 0.01uF 5% 50V
C769	1-126-157-11	s	ELECT 10uF 20% 16V
C774	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C775	1-124-589-11	s	ELECT 47uF 20% 16V
C776	1-126-157-11	s	ELECT 10uF 20% 16V
CV701	1-141-227-00	s	CAP, TRIMMER 20PF
D501	8-719-100-05	s	DIODE 1S2837
D502	8-719-100-05	s	DIODE 1S2837
D504	8-719-100-05	s	DIODE 1S2837
D506	8-719-100-05	s	DIODE 1S2837
D507	8-719-100-05	s	DIODE 1S2837

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D508	8-719-109-60	s	DIODE RD2.7ES-B2
D509	8-719-109-60	s	DIODE RD2.7ES-B2
D510	8-719-100-05	s	DIODE 1S2837
D511	8-719-815-59	s	DIODE 1S1555-S
D512	8-719-100-05	s	DIODE 1S2837
D513	8-719-100-05	s	DIODE 1S2837
D514	8-719-109-44	s	DIODE 1SS99-1
D515	8-719-109-44	s	DIODE 1SS99-1
D516	8-719-109-44	s	DIODE 1SS99-1
D517	8-719-109-44	s	DIODE 1SS99-1
D518	8-719-100-05	s	DIODE 1S2837
D519	8-719-100-05	s	DIODE 1S2837
D521	8-719-100-05	s	DIODE 1S2837
D524	8-719-100-05	s	DIODE 1S2837
D525	8-719-911-19	s	DIODE 1SS119
D526	8-719-911-19	s	DIODE 1SS119
D527	8-719-911-19	s	DIODE 1SS119
D651	8-719-100-05	s	DIODE 1S2837
D652	8-719-100-05	s	DIODE 1S2837
D701	8-719-100-05	s	DIODE 1S2837
D703	8-719-109-44	s	DIODE 1SS99-1
D704	8-719-100-05	s	DIODE 1S2837
D706	8-719-100-05	s	DIODE 1S2837
FL504	1-236-029-12	s	FILTER, BANDPASS 4.2MHz
FL701	1-235-470-11	s	FILTER, LOW-PASS
IC506	8-749-901-14	s	IC BX-1250L
IC507	8-741-125-21	s	IC BX-1252A
IC508	8-741-126-40	s	IC BX-1264
IC509	8-752-006-12	s	IC CX20061
IC511	8-759-908-59	s	IC CX859
IC512	8-750-000-46	s	IC CX872
IC518	8-759-200-60	s	IC TA7060AP
IC651	8-749-900-87	s	IC BX1470L
IC652	8-759-922-61	s	IC SN16913P-A
IC701	8-752-006-12	s	IC CX20061
IC702	8-752-006-12	s	IC CX20061
IC703	8-759-922-61	s	IC SN16913P-A
IC704	8-752-006-12	s	IC CX20061
IC705	8-752-006-12	s	IC CX20061
IC706	8-759-200-60	s	IC TA7060AP
L506	1-410-482-31	s	INDUCTOR 100uH
L507	1-410-482-31	s	INDUCTOR 100uH
L508	1-410-482-31	s	INDUCTOR 100uH
L509	1-410-482-31	s	INDUCTOR 100uH
L510	1-410-476-11	s	INDUCTOR 33uH
L511	1-410-069-11	s	INDUCTOR 6.8mH
L513	1-410-069-11	s	INDUCTOR 6.8mH
L515	1-410-489-11	s	INDUCTOR 390UH
L516	1-410-482-31	s	INDUCTOR 100uH
L517	1-410-482-31	s	INDUCTOR 100uH
L518	1-410-482-31	s	INDUCTOR 100uH
L519	1-410-482-31	s	INDUCTOR 100uH
L520	1-410-482-31	s	INDUCTOR 100uH
L701	1-410-478-11	s	INDUCTOR 47uH
L702	1-410-482-31	s	INDUCTOR 100uH
L703	1-408-247-00	s	INDUCTOR 33mH
L705	1-410-482-31	s	INDUCTOR 100uH
L706	1-410-473-11	s	INDUCTOR 18uH

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Ref. No. or Q'ty	Part No.	SP	Description
L707	1-410-482-31	s	INDUCTOR 100uH
L713	1-410-471-11	s	INDUCTOR 12uH
L716	1-410-476-11	s	INDUCTOR 33uH
LV701	1-425-982-00	s	TRANSFORMER, BANDPASS
LV702	1-411-106-00	s	COIL 5.12MHz
Q508	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q509	8-729-901-01	s	TRANSISTOR DTC144EK
Q510	8-729-901-01	s	TRANSISTOR DTC144EK
Q511	8-729-901-01	s	TRANSISTOR DTC144EK
Q520	8-729-216-22	s	TRANSISTOR 2SA1162
Q521	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q522	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q523	8-729-901-01	s	TRANSISTOR DTC144EK
Q524	8-729-202-38	s	TRANSISTOR 2SC3326N
Q525	8-729-202-38	s	TRANSISTOR 2SC3326N
Q527	8-729-216-22	s	TRANSISTOR 2SA1162
Q528	8-729-202-38	s	TRANSISTOR 2SC3326N
Q529	8-729-202-38	s	TRANSISTOR 2SC3326N
Q530	8-729-202-38	s	TRANSISTOR 2SC3326N
Q531	8-729-202-38	s	TRANSISTOR 2SC3326N
Q532	8-729-901-01	s	TRANSISTOR DTC144EK
Q533	8-729-202-38	s	TRANSISTOR 2SC3326N
Q534	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q537	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q539	8-729-202-38	s	TRANSISTOR 2SC3326N
Q540	8-729-901-01	s	TRANSISTOR DTC144EK
Q541	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q542	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q543	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q544	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q545	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q550	8-729-202-38	s	TRANSISTOR 2SC3326N
Q551	8-729-119-78	s	TRANSISTOR 2SC2785
Q601	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q602	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q603	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q604	8-729-901-01	s	TRANSISTOR DTC144EK
Q605	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q701	8-729-202-38	s	TRANSISTOR 2SC3326N
Q702	8-729-901-01	s	TRANSISTOR DTC144EK
Q703	8-729-202-38	s	TRANSISTOR 2SC3326N
Q704	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q705	8-729-202-38	s	TRANSISTOR 2SC3326N
Q706	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q707	8-729-901-01	s	TRANSISTOR DTC144EK
Q708	8-729-216-22	s	TRANSISTOR 2SA1162
Q709	8-729-216-22	s	TRANSISTOR 2SA1162
Q710	8-729-202-38	s	TRANSISTOR 2SC3326N
Q712	8-729-202-38	s	TRANSISTOR 2SC3326N
Q713	8-729-202-38	s	TRANSISTOR 2SC3326N
Q714	8-729-901-01	s	TRANSISTOR DTC144EK
Q715	8-729-901-01	s	TRANSISTOR DTC144EK
Q716	8-729-901-01	s	TRANSISTOR DTC144EK
Q717	8-729-202-38	s	TRANSISTOR 2SC3326N
Q718	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q719	8-729-202-38	s	TRANSISTOR 2SC3326N
Q720	8-729-202-38	s	TRANSISTOR 2SC3326N
Q721	8-729-271-22	s	TRANSISTOR 2SC2712-G

NOTE: Please see pages 16-39 thru 16-43 for the parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
Q725	8-729-216-22	s	TRANSISTOR 2SA1162
Q726	8-729-216-22	s	TRANSISTOR 2SA1162
Q727	8-729-202-38	s	TRANSISTOR 2SC3326N
Q728	8-729-901-01	s	TRANSISTOR DTC144EK
Q732	8-729-216-22	s	TRANSISTOR 2SA1162
Q733	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q735	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q736	8-729-901-01	s	TRANSISTOR DTC144EK
Q737	8-729-600-24	s	TRANSISTOR 2SC403SP-51
R536	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R537	1-216-696-11	s	METAL, CHIP 75K 0.5% 1/10W
R539	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R544	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R546	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R548	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R549	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R550	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R551	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R552	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R553	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R554	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R555	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R558	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R559	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R560	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R561	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R563	1-216-658-11	s	METAL, CHIP 2K 0.5% 1/10W
R564	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R565	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R566	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R567	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R568	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R570	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R572	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R573	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R574	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R575	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R576	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R577	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R578	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R579	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R580	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R581	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R582	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R583	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R584	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R585	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R586	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R587	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R588	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R589	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R590	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R591	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R592	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R593	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
R594	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R595	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R596	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R597	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R598	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R599	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R600	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R603	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R605	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R606	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R607	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R608	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R611	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R612	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R614	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R615	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R617	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R619	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R620	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R621	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R622	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R623	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R624	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R625	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R627	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R628	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R639	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R640	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R641	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R642	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R643	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R644	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R645	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R646	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R647	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R648	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R649	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R650	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R651	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R652	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R653	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R654	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R655	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R656	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R657	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R658	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R659	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R660	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R661	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R665	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R666	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R667	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R668	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R669	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R670	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R671	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R672	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R673	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R674	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R675	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R676	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
R677	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R679	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R683	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R685	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R686	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R687	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R688	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R691	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R692	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R693	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R694	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R695	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R697	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R698	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R701	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R702	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R703	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R704	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R705	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R706	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R707	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R708	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R709	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R710	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R712	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R713	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R715	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R716	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R718	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R719	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R720	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R721	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R723	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R724	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R725	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R726	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R727	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R728	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R729	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R730	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R731	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R732	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R733	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R734	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R737	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R738	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R739	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R740	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R741	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R742	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R743	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R745	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R746	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R747	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R748	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R749	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R750	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R751	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R752	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R753	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R754	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-73 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R755	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R756	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R757	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R772	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R773	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R774	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R775	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R776	1-216-032-00	s	METAL, CHIP 200 5% 1/10W
R777	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R778	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R779	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R780	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R781	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R782	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R783	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R784	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R785	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R787	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R788	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R789	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R790	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R791	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R792	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R793	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R794	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R795	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R889	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R919	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
RV504	1-228-989-00	s	RES, ADJ, METAL 470
RV505	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV506	1-228-995-00	s	RES, ADJ, METAL 22K
RV507	1-228-994-00	s	RES, ADJ, METAL 10K
RV508	1-228-994-00	s	RES, ADJ, METAL 10K
RV509	1-228-995-00	s	RES, ADJ, METAL 22K
RV510	1-228-994-00	s	RES, ADJ, METAL 10K
RV512	1-228-994-00	s	RES, ADJ, METAL 10K
RV517	1-228-989-00	s	RES, ADJ, METAL 470
RV518	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV519	1-228-995-00	s	RES, ADJ, METAL 22K
RV521	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV522	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV523	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV701	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV702	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV703	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV704	1-228-990-00	s	RES, ADJ, METAL 1K
RV705	1-228-995-00	s	RES, ADJ, METAL 22K
RV807	1-228-997-00	s	RES, ADJ, METAL 100K
RV808	1-228-996-00	s	RES, ADJ, METAL 47K
S701	1-552-509-00	s	SWITCH, DIP 1-CKT
T502	1-426-184-11	s	TRANSFORMER, BURST AMP
TH650	1-800-200-00	s	THERMISTOR S-3K

DP-62 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-733-12	o	PRINTED CIRCUIT BOARD, DP-62
CN3	1-535-761-11	o	CABLE, JUMPER 23P
D201	8-719-942-19	s	LED LB402VK
D202	8-719-942-19	s	LED LB402VK
D203	8-719-942-19	s	LED LB402VK
D204	8-719-942-19	s	LED LB402VK
S201	1-552-539-00	s	SWITCH, TACTILE
S202	1-552-539-00	s	SWITCH, TACTILE

DUS-92 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
1pc	8-825-578-22	s	HEAD, ACE

DUS-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

DUS-271 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-480-12	o	PRINTED CIRCUIT BOARD, DUS-271
R1	1-215-394-00	s	METAL 75 1% 1/6W
R2	1-215-394-00	s	METAL 75 1% 1/6W
R3	1-215-394-00	s	METAL 75 1% 1/6W
S1	1-571-083-21	s	SWITCH, SLIDE
S2	1-571-083-21	s	SWITCH, SLIDE

EC-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-475-11	o	PRINTED CIRCUIT BOARD, EC-32
1pc	8-825-514-20	s	HEAD, CTL PP170-58

HN-84 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-726-11	o	PRINTED CIRCUIT BOARD, HN-84
1pc	8-825-771-31	s	HEAD, TIME CODE PP295-58

HN-130 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-474-11	o	PRINTED CIRCUIT BOARD, HN-130
1pc	8-825-544-20	s	HEAD, ERASE

HP-42 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
RV1	1-237-703-11	s	RES, VAR, CARBON 2K/2K
RV2	1-237-703-11	s	RES, VAR, CARBON 2K/2K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

KY-159A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
BT1	1-528-229-11	o	BATTERY, LITHIUM CR-2450
1pc	A-6717-526-A	o	MOUNTED CIRCUIT BOARD, KY-159A
1pc	3-718-657-01	o	HOLDER, LED
4pcs	3-733-617-01	s	HOLDER, BUZZER
4pcs	3-733-618-01	s	PIN, BUZZER HOLDER
1pc	3-733-652-01	o	SPACER, 7 SEG
1pc	7-682-649-09	s	SCREW +PS 3X10
1pc	7-684-023-04	s	N 3, TYPE 2
C1	1-124-480-11	s	ELECT 470uF 20% 25V
C2	1-162-210-31	s	CERAMIC 30PF 5% 50V
C3	1-162-210-31	s	CERAMIC 30PF 5% 50V
C5	1-124-480-11	s	ELECT 470uF 20% 25V
C6	1-124-120-11	s	ELECT 220uF 20% 25V
C8	1-125-443-11	s	DOUBLE LAYERS 0.047FARAD 5.5V
C9	1-126-094-11	s	ELECT 4.7uF 20% 35V
C10	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C12	1-162-210-31	s	CERAMIC 30PF 5% 50V
C13	1-162-210-31	s	CERAMIC 30PF 5% 50V
C15	1-124-477-11	s	ELECT 47uF 20% 25V
C17	1-126-094-11	s	ELECT 4.7uF 20% 35V
C21	1-102-110-00	s	CERAMIC 220PF 10% 50V
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D17	8-719-911-19	s	DIODE 1SS119
D18	8-719-911-19	s	DIODE 1SS119
D19	8-719-911-19	s	DIODE 1SS119
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-911-19	s	DIODE 1SS119
D22	8-719-911-19	s	DIODE 1SS119
D23	8-719-911-19	s	DIODE 1SS119
D24	8-719-911-19	s	DIODE 1SS119
D28	8-719-911-19	s	DIODE 1SS119
D29	8-719-104-10	s	DIODE 1SS99
D45	8-719-911-19	s	DIODE 1SS119
D46	8-719-911-19	s	DIODE 1SS119
D48	8-719-200-02	s	DIODE 10E2
D49	8-719-911-19	s	DIODE 1SS119
D51	8-719-104-10	s	DIODE 1SS99
D52	8-719-911-19	s	DIODE 1SS119
D54	8-719-911-19	s	DIODE 1SS119
D55	8-719-911-19	s	DIODE 1SS119
D102	8-719-802-11	s	LED TLUG154, GRN
D103	8-719-939-39	s	LED GL5HD8, RED
D104	8-719-939-39	s	LED GL5HD8, RED
D105	8-719-939-39	s	LED GL5HD8, RED
D109	8-719-939-39	s	LED GL5HD8, RED
D110	8-719-939-39	s	LED GL5HD8, RED
D111	8-719-939-39	s	LED GL5HD8, RED
D112	8-719-939-39	s	LED GL5HD8, RED
D113	8-719-939-39	s	LED GL5HD8, RED
D114	8-719-820-28	s	LED TLG-256, GRN
D115	8-719-820-28	s	LED TLG-256, GRN

(KY-159A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D116	8-719-939-39	s	LED GL5HD8, RED
D117	8-719-802-11	s	LED TLUG154, GRN
IC1	8-759-605-23	s	IC M50747H-601SP
IC2	8-759-645-16	s	IC M54516P
IC3	8-759-645-16	s	IC M54516P
IC4	8-759-645-16	s	IC M54516P
IC5	8-759-600-68	s	IC M54562P
IC6	8-759-982-21	s	IC RC78L05A
IC7	8-759-937-29	s	IC MB88201H-539N
IC8	8-759-604-35	s	IC M5F78M05
Q2	8-729-900-67	s	TRANSISTOR DTA124XS
Q3	8-729-900-67	s	TRANSISTOR DTA124XS
Q4	8-729-900-67	s	TRANSISTOR DTA124XS
Q5	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q8	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q9	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q10	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q11	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q12	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q13	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q14	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q15	8-729-900-89	s	TRANSISTOR DTC144ES
R25	1-249-404-00	s	CARBON 82 5% 1/4W
R26	1-249-404-00	s	CARBON 82 5% 1/4W
R27	1-249-404-00	s	CARBON 82 5% 1/4W
R28	1-249-404-00	s	CARBON 82 5% 1/4W
R29	1-249-404-00	s	CARBON 82 5% 1/4W
R30	1-249-404-00	s	CARBON 82 5% 1/4W
R32	1-247-903-00	s	CARBON 1M 5% 1/4W
RB1	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB2	1-231-410-00	s	RESISTOR BLOCK 10Kx8
S10	1-552-539-00	s	SWITCH, TACTILE
S11	1-552-539-00	s	SWITCH, TACTILE
S12	1-552-539-00	s	SWITCH, TACTILE
S13	1-552-539-00	s	SWITCH, TACTILE
S14	1-552-539-00	s	SWITCH, TACTILE
S15	1-552-539-00	s	SWITCH, TACTILE
S16	1-552-539-00	s	SWITCH, TACTILE
S17	1-552-539-00	s	SWITCH, TACTILE
S18	1-552-539-00	s	SWITCH, TACTILE
S19	1-552-539-00	s	SWITCH, TACTILE
S20	1-516-961-00	s	SWITCH, LEVER SLIDE
S23	1-552-539-00	s	SWITCH, TACTILE
S24	1-552-539-00	s	SWITCH, TACTILE
S28	1-516-995-00	s	SWITCH, LEVER SLIDE
S29	1-552-539-00	s	SWITCH, TACTILE
X1	1-567-869-11	s	RESONATOR, CERAMIC 9.83MHz
X2	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

LM-13 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A "THREADING"

LP-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
D1	8-719-800-89	s	LED TLY255, YEL
D2	8-719-800-89	s	LED TLY255, YEL
D3	8-719-800-89	s	LED TLY255, YEL
R1	1-247-706-11	s	CARBON 330 5% 1/4W
R2	1-247-706-11	s	CARBON 330 5% 1/4W
R3	1-247-706-11	s	CARBON 330 5% 1/4W

MC-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C2	1-161-379-00	s	CERAMIC 0.01uF 20% 25V

MD-60A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-083-A	o	MOUNTED CIRCUIT BOARD, MD-60A
2pcs	3-621-124-00	s	SPACER
1pc	3-733-657-01	o	SHIELD (LID), MD
C1	1-124-360-00	s	ELECT 1000uF 20% 16V
C2	1-124-360-00	s	ELECT 1000uF 20% 16V
C3	1-124-589-11	s	ELECT 47uF 20% 16V
C4	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C5	1-126-101-11	s	ELECT 100uF 20% 16V
C6	1-126-101-11	s	ELECT 100uF 20% 16V
C9	1-162-732-11	s	CERAMIC 820PF 1% 50V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C12	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C17	1-124-584-00	s	ELECT 100uF 20% 10V
C18	1-124-584-00	s	ELECT 100uF 20% 10V
C20	1-124-584-00	s	ELECT 100uF 20% 10V
C24	1-124-589-11	s	ELECT 47uF 20% 16V
C25	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C29	1-126-157-11	s	ELECT 10uF 20% 16V
C30	1-124-589-11	s	ELECT 47uF 20% 16V
C32	1-126-157-11	s	ELECT 10uF 20% 16V
C33	1-126-157-11	s	ELECT 10uF 20% 16V
C35	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C36	1-126-157-11	s	ELECT 10uF 20% 16V
C37	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C38	1-124-589-11	s	ELECT 47uF 20% 16V
C41	1-124-120-11	s	ELECT 220uF 20% 25V
C42	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C43	1-126-157-11	s	ELECT 10uF 20% 16V
C44	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C45	1-124-472-11	s	ELECT 470uF 20% 10V
C46	1-131-356-00	s	TANTALUM 3.3uF 10% 25V
C48	1-124-360-00	s	ELECT 1000uF 20% 16V
C49	1-131-374-00	s	TANTALUM 33uF 10% 16V
C51	1-161-494-00	s	CERAMIC 0.022uF 25V
C52	1-124-589-11	s	ELECT 47uF 20% 16V
C55	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C56	1-124-589-11	s	ELECT 47uF 20% 16V
C57	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C58	1-124-589-11	s	ELECT 47uF 20% 16V
C59	1-124-589-11	s	ELECT 47uF 20% 16V
C60	1-162-726-11	s	CERAMIC 470PF 1% 50V
C63	1-124-589-11	s	ELECT 47uF 20% 16V
C64	1-161-494-00	s	CERAMIC 0.022uF 25V
C69	1-162-724-11	s	CERAMIC 390PF 1% 50V
C70	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C73	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C77	1-161-494-00	s	CERAMIC 0.022uF 25V
C79	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C81	1-161-375-00	s	CERAMIC 0.0022uF 20% 50V
C84	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C85	1-161-494-00	s	CERAMIC 0.022uF 25V
C86	1-161-494-00	s	CERAMIC 0.022uF 25V
C102	1-124-589-11	s	ELECT 47uF 20% 16V
C103	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C104	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C105	1-124-589-11	s	ELECT 47uF 20% 16V
C106	1-161-494-00	s	CERAMIC 0.022uF 25V

NOTE: Please see pages 16-39 thru 16-43 for the parts that
are not listed in the parts list.

(MD-60A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C107	1-161-494-00	s	CERAMIC 0.022uF 25V
C108	1-124-589-11	s	ELECT 47uF 20% 16V
C109	1-161-494-00	s	CERAMIC 0.022uF 25V
C110	1-161-494-00	s	CERAMIC 0.022uF 25V
C112	1-126-157-11	s	ELECT 10uF 20% 16V
C121	1-124-234-00	s	ELECT 22uF 20% 16V
C201	1-124-589-11	s	ELECT 47uF 20% 16V
C202	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C203	1-126-160-11	s	ELECT 1uF 20% 50V
C204	1-126-157-11	s	ELECT 10uF 20% 16V
C209	1-126-157-11	s	ELECT 10uF 20% 16V
C210	1-126-157-11	s	ELECT 10uF 20% 16V
C211	1-126-157-11	s	ELECT 10uF 20% 16V
C212	1-126-157-11	s	ELECT 10uF 20% 16V
C213	1-161-494-00	s	CERAMIC 0.022uF 25V
C214	1-126-157-11	s	ELECT 10uF 20% 16V
C215	1-126-157-11	s	ELECT 10uF 20% 16V
C216	1-161-494-00	s	CERAMIC 0.022uF 25V
C217	1-162-728-11	s	CERAMIC 560PF 1% 50V
C218	1-126-157-11	s	ELECT 10uF 20% 16V
C219	1-126-160-11	s	ELECT 1uF 20% 50V
C220	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C221	1-124-589-11	s	ELECT 47uF 20% 16V
C222	1-101-886-00	s	CERAMIC 62PF 5% 50V
C223	1-161-494-00	s	CERAMIC 0.022uF 25V
C224	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C225	1-124-589-11	s	ELECT 47uF 20% 16V
C226	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C227	1-124-589-11	s	ELECT 47uF 20% 16V
C228	1-161-494-00	s	CERAMIC 0.022uF 25V
C230	1-161-494-00	s	CERAMIC 0.022uF 25V
C231	1-161-494-00	s	CERAMIC 0.022uF 25V
C233	1-124-589-11	s	ELECT 47uF 20% 16V
C234	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C235	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C237	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C241	1-109-543-00	s	DIP MICA 240PF 10% 100V
C242	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C243	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C244	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C245	1-161-494-00	s	CERAMIC 0.022uF 25V
C247	1-124-589-11	s	ELECT 47uF 20% 16V
C248	1-126-176-11	s	ELECT 220uF 20% 10V
C249	1-126-157-11	s	ELECT 10uF 20% 16V
C250	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C252	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C253	1-161-494-00	s	CERAMIC 0.022uF 25V
C254	1-161-494-00	s	CERAMIC 0.022uF 25V
C255	1-161-494-00	s	CERAMIC 0.022uF 25V
C256	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C257	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C258	1-161-494-00	s	CERAMIC 0.022uF 25V
C260	1-161-494-00	s	CERAMIC 0.022uF 25V
C263	1-161-494-00	s	CERAMIC 0.022uF 25V
C264	1-124-589-11	s	ELECT 47uF 20% 16V
C301	1-126-160-11	s	ELECT 1uF 20% 50V
C302	1-161-494-00	s	CERAMIC 0.022uF 25V
C303	1-124-589-11	s	ELECT 47uF 20% 16V
C304	1-161-494-00	s	CERAMIC 0.022uF 25V

(MD-60A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C305	1-161-494-00	s	CERAMIC 0.022uF 25V
C306	1-126-160-11	s	ELECT 1uF 20% 50V
C307	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C308	1-161-494-00	s	CERAMIC 0.022uF 25V
C309	1-161-494-00	s	CERAMIC 0.022uF 25V
C310	1-124-589-11	s	ELECT 47uF 20% 16V
C312	1-124-584-00	s	ELECT 100uF 20% 10V
C351	1-126-157-11	s	ELECT 10uF 20% 16V
C354	1-126-157-11	s	ELECT 10uF 20% 16V
C401	1-126-101-11	s	ELECT 100uF 20% 16V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C403	1-161-494-00	s	CERAMIC 0.022uF 25V
C404	1-124-225-00	s	ELECT 100uF 20% 6.3V
C408	1-124-225-00	s	ELECT 100uF 20% 6.3V
C409	1-124-225-00	s	ELECT 100uF 20% 6.3V
C410	1-161-494-00	s	CERAMIC 0.022uF 25V
C422	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C423	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C436	1-161-494-00	s	CERAMIC 0.022uF 25V
C437	1-124-589-11	s	ELECT 47uF 20% 16V
C438	1-161-494-00	s	CERAMIC 0.022uF 25V
C442	1-124-225-00	s	ELECT 100uF 20% 6.3V
C446	1-161-494-00	s	CERAMIC 0.022uF 25V
C447	1-124-589-11	s	ELECT 47uF 20% 16V
C451	1-161-494-00	s	CERAMIC 0.022uF 25V
C462	1-161-494-00	s	CERAMIC 0.022uF 25V
C801	1-101-888-00	s	CERAMIC 68PF 5% 50V
C802	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C808	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C810	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C811	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C813	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C814	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C818	1-161-494-00	s	CERAMIC 0.022uF 25V
C819	1-124-589-11	s	ELECT 47uF 20% 16V
C821	1-131-361-00	s	TANTALUM 2.2uF 10% 20V
C823	1-126-157-11	s	ELECT 10uF 20% 16V
CN162	1-506-471-11	s	CONNECTOR, 6P, MALE
CV801	1-141-246-00	s	CAP, TRIMMER 20PF
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-104-10	s	DIODE 1SS99
D3	8-719-104-10	s	DIODE 1SS99
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-109-75	s	DIODE RD4.3ES-B2
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D203	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-915-43	s	DIODE, VARICAP FC54M

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-60A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D208	8-719-911-19	s	DIODE 1SS119
D209	8-719-911-19	s	DIODE 1SS119
D210	8-719-911-19	s	DIODE 1SS119
D801	8-719-911-19	s	DIODE 1SS119
D805	8-719-911-19	s	DIODE 1SS119
DL1	1-415-403-21	s	DELAY LINE 1uS
DL201	1-415-402-11	s	DELAY LINE 300nS
DL402	1-415-404-21	s	DELAY LINE 226nS
DL403	1-415-404-21	s	DELAY LINE 226nS
FL2	1-235-477-11	s	FILTER, HIGH-PASS
FL3	1-235-009-21	s	FILTER, HIGH-PASS
FL201	1-235-471-11	s	FILTER, LOW-PASS
FL401	1-235-475-12	s	FILTER, LOW-PASS
FL402	1-235-476-21	s	FILTER, BANDPASS 4.2MHz
IC1	8-752-006-12	s	IC CX20061
IC2	8-759-200-60	s	IC TA7060AP
IC3	8-751-310-10	s	IC CX-131A
IC4	8-741-125-70	s	IC BX-1257
IC5	8-752-006-12	s	IC CX20061
IC201	8-752-006-12	s	IC CX20061
IC202	8-752-006-12	s	IC CX20061
IC203	8-751-880-00	s	IC CX188
IC204	8-752-006-12	s	IC CX20061
IC301	8-741-126-20	s	IC BX1262
IC302	8-752-006-12	s	IC CX20061
IC303	8-759-981-91	s	IC RC4558DQ
IC401	8-743-890-00	s	IC BX-389
IC403	8-752-201-30	s	IC CX22013
IC404	8-752-030-30	s	IC CXA1020P
IC405	8-743-890-00	s	IC BX-389
IC406	8-743-890-00	s	IC BX-389
IC407	8-743-890-00	s	IC BX-389
IC801	8-759-600-50	s	IC CX-150B
IC802	8-759-345-38	s	IC HD14538BP
IC803	8-759-205-76	s	IC TC504013BP
IC804	8-759-205-76	s	IC TC504013BP
L2	1-410-482-31	s	INDUCTOR 100uH
L4	1-410-482-31	s	INDUCTOR 100uH
L8	1-407-504-00	s	INDUCTOR 10mH
L9	1-410-482-31	s	INDUCTOR 100uH
L10	1-410-482-31	s	INDUCTOR 100uH
L12	1-410-482-31	s	INDUCTOR 100uH
L13	1-410-482-31	s	INDUCTOR 100uH
L14	1-410-482-31	s	INDUCTOR 100uH
L16	1-410-471-11	s	INDUCTOR 12uH
L20	1-410-482-31	s	INDUCTOR 100uH
L21	1-410-482-31	s	INDUCTOR 100uH
L23	1-410-482-31	s	INDUCTOR 100uH
L24	1-410-482-31	s	INDUCTOR 100uH
L201	1-410-482-31	s	INDUCTOR 100uH
L202	1-410-119-11	s	INDUCTOR 1mH
L203	1-410-482-31	s	INDUCTOR 100uH
L204	1-410-478-11	s	INDUCTOR 47uH
L205	1-410-482-31	s	INDUCTOR 100uH
L206	1-410-482-31	s	INDUCTOR 100uH
L207	1-410-476-11	s	INDUCTOR 33uH

(MD-60A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L208	1-410-482-31	s	INDUCTOR 100uH
L209	1-410-090-41	s	INDUCTOR 18mH
L212	1-410-482-31	s	INDUCTOR 100uH
L301	1-410-482-31	s	INDUCTOR 100uH
L304	1-410-482-31	s	INDUCTOR 100uH
L401	1-410-482-31	s	INDUCTOR 100uH
L408	1-410-482-31	s	INDUCTOR 100uH
L409	1-410-482-31	s	INDUCTOR 100uH
L410	1-410-466-41	s	INDUCTOR 4.7uH
L801	1-410-482-31	s	INDUCTOR 100uH
L802	1-410-470-11	s	INDUCTOR 10uH
L803	1-410-482-31	s	INDUCTOR 100uH
LV1	1-407-566-00	s	COIL, VAR 3.3uH
LV301	1-407-572-00	s	COIL, VAR 33UH
Q1	8-729-603-50	s	TRANSISTOR 2SC403SP
Q2	8-729-603-50	s	TRANSISTOR 2SC403SP
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q6	8-729-603-50	s	TRANSISTOR 2SC403SP
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-603-50	s	TRANSISTOR 2SC403SP
Q9	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q10	8-729-603-50	s	TRANSISTOR 2SC403SP
Q11	8-729-603-50	s	TRANSISTOR 2SC403SP
Q12	8-729-603-50	s	TRANSISTOR 2SC403SP
Q13	8-729-603-50	s	TRANSISTOR 2SC403SP
Q14	8-729-900-89	s	TRANSISTOR DTC144ES
Q15	8-729-603-50	s	TRANSISTOR 2SC403SP
Q16	8-729-603-50	s	TRANSISTOR 2SC403SP
Q17	8-729-603-50	s	TRANSISTOR 2SC403SP
Q18	8-729-603-50	s	TRANSISTOR 2SC403SP
Q19	8-729-603-50	s	TRANSISTOR 2SC403SP
Q20	8-729-603-50	s	TRANSISTOR 2SC403SP
Q21	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q22	8-729-603-50	s	TRANSISTOR 2SC403SP
Q23	8-729-119-76	s	TRANSISTOR 2SA1175
Q24	8-729-119-76	s	TRANSISTOR 2SA1175
Q25	8-729-603-50	s	TRANSISTOR 2SC403SP
Q26	8-729-603-50	s	TRANSISTOR 2SC403SP
Q27	8-729-603-50	s	TRANSISTOR 2SC403SP
Q28	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q31	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q33	8-729-900-89	s	TRANSISTOR DTC144ES
Q34	8-729-113-33	s	TRANSISTOR 2SB733-4
Q35	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q36	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q37	8-729-603-50	s	TRANSISTOR 2SC403SP
Q39	8-729-603-50	s	TRANSISTOR 2SC403SP
Q40	8-729-603-50	s	TRANSISTOR 2SC403SP
Q43	8-729-603-50	s	TRANSISTOR 2SC403SP
Q44	8-729-900-89	s	TRANSISTOR DTC144ES
Q45	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s	TRANSISTOR 2SC403SP
Q203	8-729-603-50	s	TRANSISTOR 2SC403SP
Q204	8-729-603-50	s	TRANSISTOR 2SC403SP
Q205	8-729-603-50	s	TRANSISTOR 2SC403SP
Q206	8-729-603-50	s	TRANSISTOR 2SC403SP
Q207	8-729-119-76	s	TRANSISTOR 2SA1175
Q208	8-729-603-50	s	TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-60A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q209	8-729-603-50	s	TRANSISTOR 2SC403SP
Q210	8-729-603-50	s	TRANSISTOR 2SC403SP
Q211	8-729-603-50	s	TRANSISTOR 2SC403SP
Q212	8-729-119-76	s	TRANSISTOR 2SA1175
Q213	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q214	8-729-603-50	s	TRANSISTOR 2SC403SP
Q215	8-729-603-50	s	TRANSISTOR 2SC403SP
Q216	8-729-603-50	s	TRANSISTOR 2SC403SP
Q218	8-729-603-50	s	TRANSISTOR 2SC403SP
Q222	8-729-119-76	s	TRANSISTOR 2SA1175
Q301	8-729-603-50	s	TRANSISTOR 2SC403SP
Q351	8-729-603-50	s	TRANSISTOR 2SC403SP
Q352	8-729-603-50	s	TRANSISTOR 2SC403SP
Q401	8-729-603-50	s	TRANSISTOR 2SC403SP
Q402	8-729-603-50	s	TRANSISTOR 2SC403SP
Q403	8-729-603-50	s	TRANSISTOR 2SC403SP
Q407	8-729-603-50	s	TRANSISTOR 2SC403SP
Q408	8-729-603-50	s	TRANSISTOR 2SC403SP
Q415	8-729-603-50	s	TRANSISTOR 2SC403SP
Q416	8-729-110-52	s	TRANSISTOR 2SA1005-L
Q417	8-729-110-52	s	TRANSISTOR 2SA1005-L
Q418	8-729-190-12	s	TRANSISTOR 2SC2901
Q419	8-729-190-12	s	TRANSISTOR 2SC2901
Q420	8-729-110-52	s	TRANSISTOR 2SA1005-L
Q421	8-729-603-50	s	TRANSISTOR 2SC403SP
Q422	8-729-603-50	s	TRANSISTOR 2SC403SP
Q423	8-729-190-12	s	TRANSISTOR 2SC2901
Q424	8-729-190-12	s	TRANSISTOR 2SC2901
Q425	8-729-110-52	s	TRANSISTOR 2SA1005-L
Q426	8-729-110-52	s	TRANSISTOR 2SA1005-L
Q427	8-729-190-12	s	TRANSISTOR 2SC2901
Q428	8-729-603-50	s	TRANSISTOR 2SC403SP
Q429	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q803	8-729-900-89	s	TRANSISTOR DTC144ES
Q807	8-729-603-50	s	TRANSISTOR 2SC403SP
Q808	8-729-603-50	s	TRANSISTOR 2SC403SP
Q809	8-729-603-50	s	TRANSISTOR 2SC403SP
Q810	8-729-603-50	s	TRANSISTOR 2SC403SP
Q811	8-729-119-78	s	TRANSISTOR 2SC2785
Q812	8-729-119-76	s	TRANSISTOR 2SA1175
Q813	8-729-603-50	s	TRANSISTOR 2SC403SP
Q814	8-729-603-50	s	TRANSISTOR 2SC403SP
Q815	8-729-119-78	s	TRANSISTOR 2SC2785
Q816	8-729-119-76	s	TRANSISTOR 2SA1175
Q817	8-729-603-50	s	TRANSISTOR 2SC403SP
Q818	8-729-119-78	s	TRANSISTOR 2SC2785
Q819	8-729-201-04	s	TRANSISTOR 2SC2878
Q820	8-729-600-24	s	TRANSISTOR 2SC403SP-51
R48	1-247-852-11	s	CARBON 7.5K 5% 1/4W
R60	1-247-893-11	s	CARBON 390K 5% 1/4W
R138	⚠1-532-679-00	s	LINK, IC 0.6A
R179	1-247-887-00	s	CARBON 220K 5% 1/4W
R180	1-247-887-00	s	CARBON 220K 5% 1/4W
R241	1-247-903-00	s	CARBON 1M 5% 1/4W
R279	1-249-442-11	s	CARBON 510 5% 1/4W
R810	1-247-844-11	s	CARBON 3.6K 5% 1/4W
R850	⚠1-532-679-00	s	LINK, IC 0.6A
RV1	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV4	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV5	1-228-999-00	s	RES, ADJ, METAL 470K
RV6	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV7	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV8	1-228-996-00	s	RES, ADJ, METAL 47K
RV13	1-228-997-00	s	RES, ADJ, METAL 100K
RV201	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV202	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV203	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV301	1-228-996-00	s	RES, ADJ, METAL 47K
RV302	1-228-990-00	s	RES, ADJ, METAL 1K
RV303	1-228-999-00	s	RES, ADJ, METAL 470K
RV401	1-228-989-00	s	RES, ADJ, METAL 470
RV404	1-228-994-00	s	RES, ADJ, METAL 10K
RV405	1-228-989-00	s	RES, ADJ, METAL 470
RV406	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV407	1-228-990-00	s	RES, ADJ, METAL 1K
RV408	1-228-989-00	s	RES, ADJ, METAL 470
RV409	1-228-989-00	s	RES, ADJ, METAL 470
T201	1-425-880-21	s	TRANSFORMER, BURST AMP
TH1	1-800-200-00	s	THERMISTOR S-3K
X201	1-527-231-00	s	CRYSTAL 4.433618MHz
X801	1-567-504-11	s	CRYSTAL 4.433619MHz

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

MT-53 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
D3	8-719-820-27	s	LED TLY-256, YEL
D4	8-719-820-27	s	LED TLY-256, YEL
D5	8-719-820-27	s	LED TLY-256, YEL
D6	8-719-820-27	s	LED TLY-256, YEL

NR-31A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-048-A	o	MOUNTED CIRCUIT BOARD, NR-31A
C1	1-124-477-11	s	ELECT 47uF 20% 25V
C2	1-126-101-11	s	ELECT 100uF 20% 16V
C3	1-136-230-00	s	FILM 0.0022uF 3% 100V
C4	1-136-230-00	s	FILM 0.0022uF 3% 100V
C5	1-136-257-00	s	FILM 0.0039uF 3% 100V
C6	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C8	1-136-155-00	s	FILM 0.015uF 5% 50V
C10	1-136-169-00	s	FILM 0.22uF 5% 50V
C11	1-136-163-00	s	FILM 0.068uF 5% 50V
C13	1-130-339-00	s	FILM 0.0056uF 3% 100V
C14	1-136-153-00	s	FILM 0.01uF 5% 50V
C19	1-126-101-11	s	ELECT 100uF 20% 16V
C23	1-123-875-11	s	ELECT 10uF 20% 50V
C24	1-124-477-11	s	ELECT 47uF 20% 25V
C25	1-124-120-11	s	ELECT 220uF 20% 25V
C26	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C27	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C101	1-124-477-11	s	ELECT 47uF 20% 25V
C102	1-126-101-11	s	ELECT 100uF 20% 16V
C103	1-136-230-00	s	FILM 0.0022uF 3% 100V
C104	1-136-230-00	s	FILM 0.0022uF 3% 100V
C105	1-136-257-00	s	FILM 0.0039uF 3% 100V
C106	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C108	1-136-155-00	s	FILM 0.015uF 5% 50V
C110	1-136-169-00	s	FILM 0.22uF 5% 50V
C111	1-136-163-00	s	FILM 0.068uF 5% 50V
C113	1-130-339-00	s	FILM 0.0056uF 3% 100V
C114	1-136-153-00	s	FILM 0.01uF 5% 50V
C119	1-126-101-11	s	ELECT 100uF 20% 16V
C123	1-123-875-11	s	ELECT 10uF 20% 50V
C124	1-124-477-11	s	ELECT 47uF 20% 25V
C125	1-126-101-11	s	ELECT 100uF 20% 16V
C126	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C127	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C201	1-131-372-00	s	TANTALUM 15uF 10% 16V
C202	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C203	1-136-164-00	s	FILM 0.082uF 5% 50V
C204	1-131-372-00	s	TANTALUM 15uF 10% 16V
C205	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C206	1-136-153-00	s	FILM 0.01uF 5% 50V
C207	1-136-164-00	s	FILM 0.082uF 5% 50V
C210	1-124-477-11	s	ELECT 47uF 20% 25V
C211	1-124-477-11	s	ELECT 47uF 20% 25V
C212	1-124-902-00	s	ELECT 0.47uF 20% 50V
C213	1-124-927-11	s	ELECT 4.7uF 20% 100V
C214	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C215	1-124-927-11	s	ELECT 4.7uF 20% 100V
C216	1-126-101-11	s	ELECT 100uF 20% 16V
C218	1-126-176-11	s	ELECT 220uF 20% 10V
C301	1-131-404-00	s	TANTALUM, 0.22uF 20% 35V
C302	1-124-120-11	s	ELECT 220uF 20% 25V
C303	1-131-372-00	s	TANTALUM 15uF 10% 16V
C304	1-124-927-11	s	ELECT 4.7uF 20% 100V
C305	1-124-120-11	s	ELECT 220uF 20% 25V
C306	1-131-372-00	s	TANTALUM 15uF 10% 16V
C307	1-126-094-11	s	ELECT 4.7uF 20% 35V
C308	1-136-164-00	s	FILM 0.082uF 5% 50V

(NR-31A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C309	1-136-164-00	s	FILM 0.082uF 5% 50V
C310	1-136-168-00	s	FILM 0.18uF 5% 50V
C311	1-136-168-00	s	FILM 0.18uF 5% 50V
C312	1-136-168-00	s	FILM 0.18uF 5% 50V
C313	1-136-168-00	s	FILM 0.18uF 5% 50V
C316	1-136-153-00	s	FILM 0.01uF 5% 50V
C317	1-136-153-00	s	FILM 0.01uF 5% 50V
C318	1-124-589-11	s	ELECT 47uF 20% 16V
C319	1-124-589-11	s	ELECT 47uF 20% 16V
C320	1-124-589-11	s	ELECT 47uF 20% 16V
C321	1-124-589-11	s	ELECT 47uF 20% 16V
C322	1-124-589-11	s	ELECT 47uF 20% 16V
C323	1-124-589-11	s	ELECT 47uF 20% 16V
C324	1-124-589-11	s	ELECT 47uF 20% 16V
C325	1-124-589-11	s	ELECT 47uF 20% 16V
C326	1-124-589-11	s	ELECT 47uF 20% 16V
C327	1-124-589-11	s	ELECT 47uF 20% 16V
C328	1-124-589-11	s	ELECT 47uF 20% 16V
C329	1-124-589-11	s	ELECT 47uF 20% 16V
C330	1-124-589-11	s	ELECT 47uF 20% 16V
C331	1-124-589-11	s	ELECT 47uF 20% 16V
C332	1-124-589-11	s	ELECT 47uF 20% 16V
C333	1-124-589-11	s	ELECT 47uF 20% 16V
C334	1-124-589-11	s	ELECT 47uF 20% 16V
C335	1-124-589-11	s	ELECT 47uF 20% 16V
C336	1-124-589-11	s	ELECT 47uF 20% 16V
C337	1-124-589-11	s	ELECT 47uF 20% 16V
C338	1-126-157-11	s	ELECT 10uF 20% 16V
C339	1-124-234-00	s	ELECT 22uF 20% 16V
C340	1-126-157-11	s	ELECT 10uF 20% 16V
C341	1-124-234-00	s	ELECT 22uF 20% 16V
C342	1-124-234-00	s	ELECT 22uF 20% 16V
C343	1-126-157-11	s	ELECT 10uF 20% 16V
C344	1-124-234-00	s	ELECT 22uF 20% 16V
C345	1-126-157-11	s	ELECT 10uF 20% 16V
C346	1-126-094-11	s	ELECT 4.7uF 20% 35V
C347	1-123-875-11	s	ELECT 10uF 20% 50V
C348	1-126-101-11	s	ELECT 100uF 20% 16V
C349	1-123-875-11	s	ELECT 10uF 20% 50V
C350	1-126-157-11	s	ELECT 10uF 20% 16V
C351	1-123-875-11	s	ELECT 10uF 20% 50V
C352	1-136-153-00	s	FILM 0.01uF 5% 50V
C353	1-126-176-11	s	ELECT 220uF 20% 10V
C400	1-123-356-00	s	ELECT 10uF 20% 50V
C404	1-126-233-11	s	ELECT 22uF 20% 50V
C405	1-162-280-31	s	CERAMIC 82PF 10% 50V
C406	1-124-477-11	s	ELECT 47uF 20% 25V
C407	1-124-477-11	s	ELECT 47uF 20% 25V
C408	1-126-101-11	s	ELECT 100uF 20% 16V
C409	1-126-101-11	s	ELECT 100uF 20% 16V
C410	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C412	1-124-927-11	s	ELECT 4.7uF 20% 100V
C413	1-124-477-11	s	ELECT 47uF 20% 25V
C414	1-123-875-11	s	ELECT 10uF 20% 50V
C415	1-123-875-11	s	ELECT 10uF 20% 50V
C416	1-123-875-11	s	ELECT 10uF 20% 50V
C417	1-124-477-11	s	ELECT 47uF 20% 25V
C418	1-124-477-11	s	ELECT 47uF 20% 25V
C419	1-162-207-31	s	CERAMIC 22PF 5% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C420	1-124-477-11	s	ELECT 47uF 20% 25V
C422	1-123-875-11	s	ELECT 10uF 20% 50V
C423	1-126-101-11	s	ELECT 100uF 20% 16V
C424	1-123-875-11	s	ELECT 10uF 20% 50V
C425	1-162-286-31	s	CERAMIC 220PF 10% 50V
C426	1-123-875-11	s	ELECT 10uF 20% 50V
C427	1-124-455-00	s	ELECT 100uF 20% 16V
C430	1-124-455-00	s	ELECT 100uF 20% 16V
C431	1-126-157-11	s	ELECT 10uF 20% 16V
C432	1-126-157-11	s	ELECT 10uF 20% 16V
C436	1-124-455-00	s	ELECT 100uF 20% 16V
C437	1-123-875-11	s	ELECT 10uF 20% 50V
C438	1-123-875-11	s	ELECT 10uF 20% 50V
C439	1-126-233-11	s	ELECT 22uF 20% 50V
C440	1-124-472-11	s	ELECT 470uF 20% 10V
C441	1-124-927-11	s	ELECT 4.7uF 20% 100V
C442	1-123-875-11	s	ELECT 10uF 20% 50V
C443	1-123-875-11	s	ELECT 10uF 20% 50V
C444	1-124-455-00	s	ELECT 100uF 20% 16V
C445	1-124-477-11	s	ELECT 47uF 20% 25V
CP1	1-236-010-11	s	FILTER, LOW-PASS
CP101	1-236-010-11	s	FILTER, LOW-PASS
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D201	8-729-105-68	s	TRANSISTOR 2SC3356-K
D202	8-719-911-19	s	DIODE 1SS119
D203	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-729-105-68	s	TRANSISTOR 2SC3356-K
D400	8-719-911-19	s	DIODE 1SS119
D401	8-719-101-97	s	DIODE 1SS97-1
D402	8-719-101-97	s	DIODE 1SS97-1
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D405	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-729-105-68	s	TRANSISTOR 2SC3356-K
D411	8-729-105-68	s	TRANSISTOR 2SC3356-K
IC1	8-752-018-80	s	IC CX20188
IC2	8-759-981-90	s	IC RC4558DD
IC3	8-759-208-12	s	IC TC4016BPHB
IC102	8-759-981-90	s	IC RC4558DD

(NR-31A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC103	8-759-208-12	s	IC TC4016BPHB
IC201	8-759-340-13	s	IC HD14013BP
IC202	8-759-981-90	s	IC RC4558DD
IC203	8-759-240-71	s	IC TC4071BP
IC204	8-759-240-11	s	IC TC4011BP
IC205	8-759-240-11	s	IC TC4011BP
IC302	8-759-132-40	s	IC UPC324C
IC303	8-759-969-13	s	IC SN16913P
IC304	8-759-969-13	s	IC SN16913P
IC305	8-759-969-13	s	IC SN16913P
IC306	8-759-969-13	s	IC SN16913P
IC310	8-759-981-74	s	IC LM2904S
IC311	8-759-981-74	s	IC LM2904S
IC401	8-759-981-57	s	IC RC2043DD
IC402	8-759-981-64	s	IC LM2903DQ
IC403	8-759-922-36	s	IC CX20060
IC404	8-759-922-36	s	IC CX20060
IC405	8-759-982-02	s	IC RC4562DD
IC406	8-759-922-36	s	IC CX20060
IC407	8-759-922-36	s	IC CX20060
IC408	8-759-982-25	s	IC RC78L09A
PS10	⚠1-532-727-11	s	LINK, IC 0.25A
Q1	8-729-900-65	s	TRANSISTOR DTA144ES
Q101	8-729-900-65	s	TRANSISTOR DTA144ES
Q201	8-729-900-89	s	TRANSISTOR DTC144ES
Q202	8-729-119-78	s	TRANSISTOR 2SC2785
Q203	8-729-119-78	s	TRANSISTOR 2SC2785
Q204	8-729-119-78	s	TRANSISTOR 2SC2785
Q205	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q206	8-729-900-65	s	TRANSISTOR DTA144ES
Q207	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q208	8-729-900-65	s	TRANSISTOR DTA144ES
Q301	8-729-900-89	s	TRANSISTOR DTC144ES
Q302	8-729-900-89	s	TRANSISTOR DTC144ES
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q304	8-729-900-89	s	TRANSISTOR DTC144ES
Q305	8-729-900-89	s	TRANSISTOR DTC144ES
Q306	8-729-119-76	s	TRANSISTOR 2SA1175
Q307	8-729-119-76	s	TRANSISTOR 2SA1175
Q308	8-729-119-76	s	TRANSISTOR 2SA1175
Q309	8-729-119-76	s	TRANSISTOR 2SA1175
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q402	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q403	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q405	8-729-119-78	s	TRANSISTOR 2SC2785
Q406	8-729-119-76	s	TRANSISTOR 2SA1175
Q407	8-729-900-89	s	TRANSISTOR DTC144ES
Q408	8-729-119-78	s	TRANSISTOR 2SC2785
Q409	8-729-900-65	s	TRANSISTOR DTA144ES
Q410	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q411	8-729-119-78	s	TRANSISTOR 2SC2785
Q412	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q413	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q414	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q415	8-729-119-76	s	TRANSISTOR 2SA1175
Q416	8-729-900-89	s	TRANSISTOR DTC144ES
Q417	8-729-119-78	s	TRANSISTOR 2SC2785

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q418	8-729-119-76	s	TRANSISTOR 2SA1175
Q419	8-729-900-65	s	TRANSISTOR DTA144ES
R10	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-889-00	s	CARBON 270K 5% 1/4W
R21	1-247-889-00	s	CARBON 270K 5% 1/4W
R23	1-247-889-00	s	CARBON 270K 5% 1/4W
R24	1-247-889-00	s	CARBON 270K 5% 1/4W
R25	1-247-897-11	s	CARBON 560K 5% 1/4W
R26	1-247-903-00	s	CARBON 1M 5% 1/4W
R27	1-247-903-00	s	CARBON 1M 5% 1/4W
R28	1-247-903-00	s	CARBON 1M 5% 1/4W
R29	1-247-895-00	s	CARBON 470K 5% 1/4W
R30	1-247-883-00	s	CARBON 150K 5% 1/4W
R31	1-247-899-11	s	CARBON 680K 5% 1/4W
R110	1-247-903-00	s	CARBON 1M 5% 1/4W
R117	1-247-889-00	s	CARBON 270K 5% 1/4W
R121	1-247-889-00	s	CARBON 270K 5% 1/4W
R123	1-247-889-00	s	CARBON 270K 5% 1/4W
R124	1-247-889-00	s	CARBON 270K 5% 1/4W
R125	1-247-897-11	s	CARBON 560K 5% 1/4W
R126	1-247-903-00	s	CARBON 1M 5% 1/4W
R127	1-247-903-00	s	CARBON 1M 5% 1/4W
R128	1-247-903-00	s	CARBON 1M 5% 1/4W
R129	1-247-895-00	s	CARBON 470K 5% 1/4W
R130	1-247-883-00	s	CARBON 150K 5% 1/4W
R131	1-247-899-11	s	CARBON 680K 5% 1/4W
R231	1-247-887-00	s	CARBON 220K 5% 1/4W
R245	1-247-899-11	s	CARBON 680K 5% 1/4W
R318	1-247-885-00	s	CARBON 180K 5% 1/4W
R319	1-247-885-00	s	CARBON 180K 5% 1/4W
R322	1-247-895-00	s	CARBON 470K 5% 1/4W
R323	1-247-895-00	s	CARBON 470K 5% 1/4W
R339	1-247-881-00	s	CARBON 120K 5% 1/4W
R343	1-247-887-00	s	CARBON 220K 5% 1/4W
R345	1-247-903-00	s	CARBON 1M 5% 1/4W
R407	1-247-895-00	s	CARBON 470K 5% 1/4W
RV11	1-230-497-11	s	RES, ADJ, METAL 22K
RV111	1-230-497-11	s	RES, ADJ, METAL 22K
RV211	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV212	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV311	1-230-726-11	s	RES, ADJ, CARBON 470K
RV312	1-230-500-11	s	RES, ADJ, METAL 220K
RV313	1-230-497-11	s	RES, ADJ, METAL 22K
RV314	1-230-497-11	s	RES, ADJ, METAL 22K
RV315	1-230-718-11	s	RES, ADJ, CARBON 1K
RV316	1-230-718-11	s	RES, ADJ, CARBON 1K
RV317	1-230-497-11	s	RES, ADJ, METAL 22K
RV401	1-228-996-00	s	RES, ADJ, METAL 47K
RV402	1-228-996-00	s	RES, ADJ, METAL 47K

PD-40 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
1pc	2-382-416-01	o	SUPPORT, PC
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-124-927-11	s	ELECT 4.7uF 20% 100V
C4	1-124-927-11	s	ELECT 4.7uF 20% 100V
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
D7	8-719-200-02	s	DIODE 10E2
D8	8-719-200-02	s	DIODE 10E2
D9	8-719-200-02	s	DIODE 10E2
D10	8-719-200-02	s	DIODE 10E2
D11	8-719-200-02	s	DIODE 10E2
D12	8-719-200-02	s	DIODE 10E2
D13	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785
Q6	8-729-889-40	s	TRANSISTOR 2SD894
Q7	8-729-199-82	s	TRANSISTOR 2SD998
Q8	8-729-811-11	s	TRANSISTOR 2SD1111
Q9	8-729-119-78	s	TRANSISTOR 2SC2785
Q10	8-729-199-82	s	TRANSISTOR 2SD998
Q11	8-729-811-11	s	TRANSISTOR 2SD1111
Q12	8-729-119-78	s	TRANSISTOR 2SC2785
Q13	8-729-119-78	s	TRANSISTOR 2SC2785
Q14	8-729-199-82	s	TRANSISTOR 2SD998
R6	⚠1-532-685-00	s	LINK, IC 0.8A
R12	⚠1-532-685-00	s	LINK, IC 0.8A
R19	⚠1-532-685-00	s	LINK, IC 0.8A
R25	⚠1-532-685-00	s	LINK, IC 0.8A
R30	⚠1-532-685-00	s	LINK, IC 0.8A

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PD-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785
Q6	8-729-889-40	s	TRANSISTOR 2SD894
R6	⚠1-532-685-00	s	LINK, IC 0.8A
R12	⚠1-532-685-00	s	LINK, IC 0.8A

PH-5 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
D1	8-719-905-58	s	DIODE EQA02-06F1
Q1	8-729-810-22	s	TRANSISTOR SPS102-B

PT-9 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
Q1	8-729-377-13	s	TRANSISTOR 2SA771-Y

PTC-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC3	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52

PTC-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-564-026-00	o	CONTACT, FEMALE, AWG26-30
1pc	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
C1	1-124-234-00	s	ELECT 22uF 20% 16V
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC3	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
IC4	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC5	8-759-133-90	s	IC UPC339C

PTC-33 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "THREAD END DET"
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "UNTHREAD END DET"

PTC-34 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "FR UNTHREAD END DET"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PTC-35 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
IC1A	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "TAKE-UP ROTATION DET"
IC1B	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "SUPPLY ROTATION DET"

RM-39 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
C1	1-101-006-00	s	CERAMIC 0.047uF 50V
C2	1-101-006-00	s	CERAMIC 0.047uF 50V
L1	1-410-623-11	s	INDUCTOR 4.7uH
L2	1-410-623-11	s	INDUCTOR 4.7uH
M1006	8-835-178-01	s	MOTOR, DC FN30-T26N1E "REEL"

RM-66 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-563-890-21	s	CONNECTOR, D-SUB 9P, FEMALE
1pc	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1pc	3-668-459-11	o	SCREW, CONNECTOR
1pc	3-668-460-00	o	SPRING
1pc	3-733-601-01	o	BRACKET, 9P

RP-40C BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-084-A	o	MOUNTED CIRCUIT BOARD. RP-40C
2pcs	7-682-903-11	s	SCREW +PWH 3X6
C1	1-124-120-11	s	ELECT 220uF 20% 25V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C7	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C8	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C9	1-124-589-11	s	ELECT 47uF 20% 16V
C10	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C14	1-126-160-11	s	ELECT 1uF 20% 50V
C15	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C17	1-124-589-11	s	ELECT 47uF 20% 16V
C20	1-126-160-11	s	ELECT 1uF 20% 50V
C21	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C22	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C23	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
CN183	1-506-471-11	o	CONNECTOR, 6P, MALE
CN186	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-109-60	s	DIODE RD2.7ES-B2
D4	8-719-911-19	s	DIODE 1SS119
IC1	8-743-731-00	s	IC BX-373A
IC2	8-729-801-46	s	TRANSISTOR 2SC3064-F
IC3	8-741-126-50	s	IC BX-1265
IC4	8-759-240-09	s	IC TC4009UBP
IC5	8-729-801-46	s	TRANSISTOR 2SC3064-F
IC6	8-741-126-50	s	IC BX-1265
L1	1-410-482-31	s	INDUCTOR 100uH
L3	1-410-482-31	s	INDUCTOR 100uH
L4	1-410-482-31	s	INDUCTOR 100uH
Q1	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q2	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q4	8-729-603-50	s	TRANSISTOR 2SC403SP
Q5	8-729-603-50	s	TRANSISTOR 2SC403SP
Q6	8-729-603-50	s	TRANSISTOR 2SC403SP
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-201-05	s	TRANSISTOR 2SC2878-B
R1	1-249-404-00	s	CARBON 82 5% 1/4W
R2	1-249-404-00	s	CARBON 82 5% 1/4W
RV1	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-990-00	s	RES, ADJ, METAL 1K
RV4	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV5	1-228-990-00	s	RES, ADJ, METAL 1K
RV6	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV7	1-228-990-00	s	RES, ADJ, METAL 1K
RV8	1-228-991-00	s	RES, ADJ, METAL 2.2K
T1	1-426-017-00	s	TRANSFORMER, AF
T2	1-426-172-11	s	TRANSFORMER, HF
T3	1-426-319-11	s	TRANSFORMER, PB RF
T4	1-426-172-11	s	TRANSFORMER, HF

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(RP-40C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
T5	1-426-320-11	s	TRANSFORMER, PB RF

SE-46 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
PC1	1-806-232-21	s	DETECTOR MB-1102/SN

SV-112C BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-085-A	o	MOUNTED CIRCUIT BOARD. SV-112C
2pcs	2-371-561-00	s	BUSHING (P), INSULATING
2pcs	3-703-037-00	s	INSULATOR, TO-220
2pcs	7-682-648-09	s	SCREW +PS 3X8
4pcs	7-682-903-11	s	SCREW +PWH 3X6
C3	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C4	1-124-963-11	s	ELECT 33uF 20% 16V
C6	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s	CERAMIC 0.0015uF 20% 50V
C9	1-124-925-11	s	ELECT 2.2uF 20% 100V
C10	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C12	1-161-329-00	s	CERAMIC 0.0068uF 30% 25V
C13	1-124-963-11	s	ELECT 33uF 20% 16V
C14	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s	ELECT 470uF 20% 25V
C17	1-161-057-00	s	CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C104	1-162-215-31	s	CERAMIC 47PF 5% 50V
C106	1-161-047-00	s	CERAMIC 0.0047uF 10% 50V
C107	1-124-477-11	s	ELECT 47uF 20% 25V
C108	1-123-875-11	s	ELECT 10uF 20% 50V
C109	1-124-910-11	s	ELECT 47uF 20% 50V
C110	1-124-910-11	s	ELECT 47uF 20% 50V
C111	1-161-042-00	s	CERAMIC 0.0018uF 10% 50V
C112	1-161-042-00	s	CERAMIC 0.0018uF 10% 50V
C116	1-162-286-31	s	CERAMIC 220PF 10% 50V
C120	1-162-288-31	s	CERAMIC 330PF 10% 50V
C301	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C302	1-161-040-00	s	CERAMIC 0.0012uF 10% 50V
C304	1-126-233-11	s	ELECT 22uF 20% 50V
C305	1-126-233-11	s	ELECT 22uF 20% 50V
C306	1-162-286-31	s	CERAMIC 220PF 10% 50V
C308	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C312	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C313	1-123-875-11	s	ELECT 10uF 20% 50V
C402	1-124-902-00	s	ELECT 0.47uF 20% 50V
C404	1-124-902-00	s	ELECT 0.47uF 20% 50V
C406	1-124-902-00	s	ELECT 0.47uF 20% 50V
C408	1-124-443-00	s	ELECT 100uF 20% 10V
C409	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C410	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C411	1-162-207-31	s	CERAMIC 22PF 5% 50V
C412	1-162-282-31	s	CERAMIC 100PF 10% 50V
C413	1-162-284-31	s	CERAMIC 150PF 10% 50V
C414	1-124-477-11	s	ELECT 47uF 20% 25V
C415	1-124-963-11	s	ELECT 33uF 20% 16V
C418	1-162-282-31	s	CERAMIC 100PF 10% 50V
C422	1-124-464-11	s	ELECT 0.22uF 20% 50V
C423	1-162-288-31	s	CERAMIC 330PF 10% 50V
C424	1-123-875-11	s	ELECT 10uF 20% 50V
C425	1-124-925-11	s	ELECT 2.2uF 20% 100V
C426	1-124-925-11	s	ELECT 2.2uF 20% 100V
C429	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s	ELECT 0.1uF 20% 50V
C432	1-124-120-11	s	ELECT 220uF 20% 25V
C433	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C434	1-124-120-11	s	ELECT 220uF 20% 25V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C501	1-124-477-11	s	ELECT 47uF 20% 25V
C503	1-123-875-11	s	ELECT 10uF 20% 50V
C504	1-124-902-00	s	ELECT 0.47uF 20% 50V
C505	1-124-120-11	s	ELECT 220uF 20% 25V
C507	1-162-290-31	s	CERAMIC 470PF 10% 50V
C701	1-124-477-11	s	ELECT 47uF 20% 25V
C702	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s	ELECT 330uF 20% 16V
C707	1-124-477-11	s	ELECT 47uF 20% 25V
C709	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C710	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C717	1-124-477-11	s	ELECT 47uF 20% 25V
C718	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C900	1-124-463-00	s	ELECT 0.1uF 20% 50V
C901	1-162-290-31	s	CERAMIC 470PF 10% 50V
C904	1-124-927-11	s	ELECT 4.7uF 20% 100V
C906	1-161-329-00	s	CERAMIC 0.0068uF 30% 25V
C911	1-123-875-11	s	ELECT 10uF 20% 50V
C912	1-124-477-11	s	ELECT 47uF 20% 25V
C913	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C914	1-126-157-11	s	ELECT 10uF 20% 16V
C915	1-162-210-31	s	CERAMIC 30PF 5% 50V
C916	1-162-210-31	s	CERAMIC 30PF 5% 50V
C917	1-162-290-31	s	CERAMIC 470PF 10% 50V
C918	1-124-910-11	s	ELECT 47uF 20% 50V
C919	1-162-286-31	s	CERAMIC 220PF 10% 50V
C920	1-162-286-31	s	CERAMIC 220PF 10% 50V
C921	1-162-282-31	s	CERAMIC 100PF 10% 50V
C922	1-162-282-31	s	CERAMIC 100PF 10% 50V
C999	1-161-047-00	s	CERAMIC 0.0047uF 10% 50V
CN410	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-55	s	DIODE U05G
D101	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-911-19	s	DIODE 1SS119
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D112	8-719-911-19	s	DIODE 1SS119
D113	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-911-19	s	DIODE 1SS119

(SV-112C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D208	8-719-911-19	s	DIODE 1SS119
D210	8-719-109-63	s	DIODE RD3.0ESB2
D211	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-719-911-19	s	DIODE 1SS119
D411	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D600	8-719-911-19	s	DIODE 1SS119
D850	8-719-911-19	s	DIODE 1SS119
D866	8-719-911-19	s	DIODE 1SS119
D870	8-719-911-19	s	DIODE 1SS119
D902	8-719-911-19	s	DIODE 1SS119
D903	8-719-911-19	s	DIODE 1SS119
D904	8-719-911-19	s	DIODE 1SS119
D905	8-719-911-19	s	DIODE 1SS119
D906	8-719-911-19	s	DIODE 1SS119
D907	8-719-911-19	s	DIODE 1SS119
D910	8-719-911-19	s	DIODE 1SS119
D911	8-719-101-97	s	DIODE 1SS97-1
D912	8-719-911-19	s	DIODE 1SS119
D913	8-719-911-19	s	DIODE 1SS119
D914	8-719-911-19	s	DIODE 1SS119
D915	8-719-911-19	s	DIODE 1SS119
D916	8-719-911-19	s	DIODE 1SS119
D917	8-719-911-19	s	DIODE 1SS119
D919	8-719-911-19	s	DIODE 1SS119
D920	8-719-911-19	s	DIODE 1SS119
D921	8-719-911-19	s	DIODE 1SS119
D922	8-719-911-19	s	DIODE 1SS119
D923	8-719-911-19	s	DIODE 1SS119
IC1	8-759-132-40	s	IC UPC324C
IC2	8-759-981-95	s	IC RC4558S
IC3	8-759-981-90	s	IC RC4558DD
IC4	8-759-240-81	s	IC TC4081BP
IC5	8-759-208-10	s	IC TC4053BPHB
IC8	8-759-132-40	s	IC UPC324C
IC9	8-759-132-40	s	IC UPC324C
IC10	8-759-133-90	s	IC UPC339C
IC12	8-759-135-80	s	IC UPC358C
IC13	8-759-208-10	s	IC TC4053BPHB
IC15	8-759-200-01	s	IC TC4001UBP
IC16	8-759-208-10	s	IC TC4053BPHB
IC17	8-751-941-05	s	IC CX194B-5
IC18	8-759-984-93	s	IC MB88505H-1054M
IC19	8-759-207-73	s	IC TC4030BPHB
IC20	8-759-208-10	s	IC TC4053BPHB
IC21	8-743-915-10	s	IC BX3915A

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC22	8-759-135-80	s	IC UPC358C
IC850	8-759-345-38	s	IC HD14538BP
IC902	8-759-240-69	s	IC TC4069UBP
IC903	1-464-259-12	s	CORRECTION UNIT, SWITCHING
IC906	8-759-240-69	s	IC TC4069UBP
IC907	8-759-984-95	s	IC MB88201H-652M
IC908	8-759-910-43	s	IC CX23028
PS1	⚠1-532-685-00	s	LINK, IC 0.8A
Q1	8-729-119-78	s	TRANSISTOR 2SC2785
Q2	8-729-119-76	s	TRANSISTOR 2SA1175
Q3	8-729-376-84	s	TRANSISTOR 2SA768-G
Q4	8-729-804-92	s	TRANSISTOR 2SD1682-T
Q5	8-729-177-42	s	TRANSISTOR 2SD774-3
Q101	8-729-900-83	s	TRANSISTOR DTC124XS
Q102	8-729-119-78	s	TRANSISTOR 2SC2785
Q103	8-729-900-83	s	TRANSISTOR DTC124XS
Q104	8-729-119-76	s	TRANSISTOR 2SA1175
Q106	8-729-119-78	s	TRANSISTOR 2SC2785
Q107	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q108	8-729-900-83	s	TRANSISTOR DTC124XS
Q109	8-729-900-89	s	TRANSISTOR DTC144ES
Q110	8-729-119-78	s	TRANSISTOR 2SC2785
Q111	8-729-376-84	s	TRANSISTOR 2SA768-G
Q112	8-729-119-76	s	TRANSISTOR 2SA1175
Q113	8-729-804-92	s	TRANSISTOR 2SD1682-T
Q114	8-729-900-67	s	TRANSISTOR DTA124XS
Q201	8-729-900-83	s	TRANSISTOR DTC124XS
Q202	8-729-900-83	s	TRANSISTOR DTC124XS
Q203	8-729-900-83	s	TRANSISTOR DTC124XS
Q204	8-729-900-83	s	TRANSISTOR DTC124XS
Q206	8-729-900-83	s	TRANSISTOR DTC124XS
Q301	8-729-119-78	s	TRANSISTOR 2SC2785
Q302	8-729-119-78	s	TRANSISTOR 2SC2785
Q303	8-729-119-78	s	TRANSISTOR 2SC2785
Q304	8-729-119-78	s	TRANSISTOR 2SC2785
Q305	8-729-900-83	s	TRANSISTOR DTC124XS
Q401	8-729-119-78	s	TRANSISTOR 2SC2785
Q403	8-729-119-78	s	TRANSISTOR 2SC2785
Q404	8-729-119-78	s	TRANSISTOR 2SC2785
Q408	8-729-603-50	s	TRANSISTOR 2SC403SP
Q410	8-729-900-67	s	TRANSISTOR DTA124XS
Q411	8-729-119-78	s	TRANSISTOR 2SC2785
Q412	8-729-119-78	s	TRANSISTOR 2SC2785
Q850	8-729-900-89	s	TRANSISTOR DTC144ES
Q854	8-729-900-36	s	TRANSISTOR DTC124ES
Q855	8-729-119-78	s	TRANSISTOR 2SC2785
Q856	8-729-900-36	s	TRANSISTOR DTC124ES
Q857	8-729-900-89	s	TRANSISTOR DTC144ES
Q900	8-729-119-78	s	TRANSISTOR 2SC2785
Q901	8-729-119-78	s	TRANSISTOR 2SC2785
Q902	8-729-119-78	s	TRANSISTOR 2SC2785
Q903	8-729-119-78	s	TRANSISTOR 2SC2785
Q905	8-729-603-50	s	TRANSISTOR 2SC403SP
Q908	8-729-119-78	s	TRANSISTOR 2SC2785
Q911	8-729-119-78	s	TRANSISTOR 2SC2785
Q912	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q913	8-729-603-50	s	TRANSISTOR 2SC403SP
Q914	8-729-119-76	s	TRANSISTOR 2SA1175

(SV-112C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q915	8-729-900-89	s	TRANSISTOR DTC144ES
R12	1-247-895-00	s	CARBON 470K 5% 1/4W
R13	1-247-881-00	s	CARBON 120K 5% 1/4W
R14	1-247-903-00	s	CARBON 1M 5% 1/4W
R15	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-895-00	s	CARBON 470K 5% 1/4W
R35	1-247-901-11	s	CARBON 820K 5% 1/4
R36	1-247-886-11	s	CARBON 200K 5% 1/4W
R42	⚠1-207-621-00	s	WIREWOUND 1.5 10% 3W
R111	1-247-893-11	s	CARBON 390K 5% 1/4W
R125	1-247-887-00	s	CARBON 220K 5% 1/4W
R147	1-247-895-00	s	CARBON 470K 5% 1/4W
R150	1-247-903-00	s	CARBON 1M 5% 1/4W
R151	1-247-891-00	s	CARBON 330K 5% 1/4W
R162	1-247-895-00	s	CARBON 470K 5% 1/4W
R172	1-247-891-00	s	CARBON 330K 5% 1/4W
R175	1-247-903-00	s	CARBON 1M 5% 1/4W
R176	1-247-887-00	s	CARBON 220K 5% 1/4W
R178	1-247-895-00	s	CARBON 470K 5% 1/4W
R223	1-247-897-11	s	CARBON 560K 5% 1/4W
R224	1-247-897-11	s	CARBON 560K 5% 1/4W
R260	1-247-895-00	s	CARBON 470K 5% 1/4W
R305	1-247-903-00	s	CARBON 1M 5% 1/4W
R306	1-247-895-00	s	CARBON 470K 5% 1/4W
R310	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	1-247-895-00	s	CARBON 470K 5% 1/4W
R315	1-247-903-00	s	CARBON 1M 5% 1/4W
R326	1-247-883-00	s	CARBON 150K 5% 1/4W
R328	1-247-903-00	s	CARBON 1M 5% 1/4W
R414	1-247-744-11	s	CARBON 270 5% 1/2W
R426	1-247-901-11	s	CARBON 820K 5% 1/4
R432	1-247-903-00	s	CARBON 1M 5% 1/4W
R433	1-247-889-00	s	CARBON 270K 5% 1/4W
R461	⚠1-207-636-00	s	WIREWOUND 100 10% 3W
R759	1-247-883-00	s	CARBON 150K 5% 1/4W
R892	1-247-848-11	s	CARBON 5.1K 5% 1/4W
R917	1-247-883-00	s	CARBON 150K 5% 1/4W
R928	1-247-899-11	s	CARBON 680K 5% 1/4W
R929	1-247-899-11	s	CARBON 680K 5% 1/4W
R961	1-247-903-00	s	CARBON 1M 5% 1/4W
RV1	1-228-994-00	s	RES, ADJ, METAL 10K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV100	1-228-994-00	s	RES, ADJ, METAL 10K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV106	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s	RES, ADJ, METAL 22K
RV201	1-228-990-00	s	RES, ADJ, METAL 1K
RV402	1-228-996-00	s	RES, ADJ, METAL 47K
RV404	1-228-996-00	s	RES, ADJ, METAL 47K
RV405	1-228-996-00	s	RES, ADJ, METAL 47K
RV406	1-228-997-00	s	RES, ADJ, METAL 100K
RV900	1-228-996-00	s	RES, ADJ, METAL 47K
X1	1-567-504-11	s	CRYSTAL 4.433619MHz
X2	1-567-962-11	s	CRYSTAL 8.000000MHz
X3	1-567-132-00	s	RESONATOR, CERAMIC 8.00MHz

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

SW-315A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6729-854-A	o	MOUNTED CIRCUIT BOARD, SW-315A
CN917	1-506-471-11	o	CONNECTOR, 6P, MALE
D1	8-719-802-24	s	DIODE TLUY154
D2	8-719-802-24	s	DIODE TLUY154
D3	8-719-802-11	s	LED TLUG154, GRN
D4	8-719-802-11	s	LED TLUG154, GRN
D5	8-719-802-24	s	DIODE TLUY154
D7	8-719-110-03	s	DIODE RD7.5ES-B2
Q1	8-729-119-78	s	TRANSISTOR 2SC2785
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-119-76	s	TRANSISTOR 2SA1175
S1	1-516-963-00	s	SWITCH, LEVER SLIDE
S2	1-571-116-11	s	SWITCH, LEVER SLIDE
S3	1-571-116-11	s	SWITCH, LEVER SLIDE
S4	1-571-116-11	s	SWITCH, LEVER SLIDE
S6	1-571-116-11	s	SWITCH, LEVER SLIDE

SY-141C BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-086-A	o	MOUNTED CIRCUIT BOARD, SY-141C
1pc	2-371-561-00	s	BUSHING (P), INSULATING
1pc	3-703-037-00	s	INSULATOR, TO-220
1pc	7-682-650-09	s	SCREW +PS 3X12
6pcs	7-682-903-11	s	SCREW +PWH 3X6
1pc	7-684-023-04	s	N 3, TYPE 2
C1	1-102-110-00	s	CERAMIC 220PF 10% 50V
C2	1-102-110-00	s	CERAMIC 220PF 10% 50V
C4	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C5	1-124-589-11	s	ELECT 47uF 20% 16V
C6	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C7	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C8	1-126-160-11	s	ELECT 1uF 20% 50V
C9	1-124-248-00	s	ELECT 22uF 20% 35V
C10	1-124-589-11	s	ELECT 47uF 20% 16V
C11	1-126-163-11	s	ELECT 4.7uF 20% 50V
C14	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C15	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C16	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C19	1-124-589-11	s	ELECT 47uF 20% 16V
C20	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C31	1-102-973-00	s	CERAMIC 100PF 5% 50V
C48	1-162-207-31	s	CERAMIC 22PF 5% 50V
C49	1-162-207-31	s	CERAMIC 22PF 5% 50V
C101	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C102	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C302	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C304	1-162-210-31	s	CERAMIC 30PF 5% 50V
C305	1-162-210-31	s	CERAMIC 30PF 5% 50V
C306	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C307	1-124-465-00	s	ELECT 0.47uF 20% 50V
C310	1-124-589-11	s	ELECT 47uF 20% 16V
C311	1-126-160-11	s	ELECT 1uF 20% 50V
C312	1-124-589-11	s	ELECT 47uF 20% 16V
C313	1-126-101-11	s	ELECT 100uF 20% 16V
C314	1-162-286-31	s	CERAMIC 220PF 10% 50V
C315	1-161-020-11	s	CERAMIC 0.039uF 10% 25V
C317	1-126-160-11	s	ELECT 1uF 20% 50V
C318	1-131-358-00	s	TANTALUM 6.8uF 10% 25V
C327	1-126-160-11	s	ELECT 1uF 20% 50V
C328	1-124-261-00	s	ELECT 10uF 20% 50V
C329	1-124-589-11	s	ELECT 47uF 20% 16V
C330	1-126-160-11	s	ELECT 1uF 20% 50V
C335	1-162-215-31	s	CERAMIC 47PF 5% 50V
C407	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C410	1-162-282-31	s	CERAMIC 100PF 10% 50V
C501	1-126-101-11	s	ELECT 100uF 20% 16V
C502	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C503	1-126-101-11	s	ELECT 100uF 20% 16V
C504	1-126-101-11	s	ELECT 100uF 20% 16V
C505	1-126-101-11	s	ELECT 100uF 20% 16V
C506	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C507	1-161-041-00	s	CERAMIC 0.0015uF 10% 50V
C508	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C509	1-124-248-00	s	ELECT 22uF 20% 35V
C510	1-124-248-00	s	ELECT 22uF 20% 35V
C511	1-124-261-00	s	ELECT 10uF 20% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C512	1-162-286-31	s	CERAMIC 220PF 10% 50V
C513	1-162-282-31	s	CERAMIC 100PF 10% 50V
C514	1-162-282-31	s	CERAMIC 100PF 10% 50V
C516	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
CN517	1-506-471-11	s	CONNECTOR, 6P, MALE
CN520	1-506-471-11	s	CONNECTOR, 6P, MALE
CNI2	1-526-659-00	s	SOCKET, IC 28P
CV401	1-141-404-11	s	CAP, TRIMMER 30PF
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-719-911-19	s	DIODE 1SS119
D308	8-719-911-19	s	DIODE 1SS119
D309	8-719-911-19	s	DIODE 1SS119
D310	8-719-911-19	s	DIODE 1SS119
D311	8-719-911-19	s	DIODE 1SS119
D312	8-719-911-19	s	DIODE 1SS119
D313	8-719-911-19	s	DIODE 1SS119
D314	8-719-911-19	s	DIODE 1SS119
D315	8-719-911-19	s	DIODE 1SS119
D316	8-719-911-19	s	DIODE 1SS119
D317	8-719-911-19	s	DIODE 1SS119
D320	8-719-911-19	s	DIODE 1SS119
D321	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-911-55	s	DIODE U05G
D510	8-719-911-19	s	DIODE 1SS119
IC1	8-759-208-85	s	IC TMPZ84C011AF
IC2	--PENDING---	s	IC MBM27C256A-25CZ
IC3	8-752-328-10	s	IC CXK5864BP-10L
IC4	8-752-323-26	s	IC CXK1009P
IC5	8-759-916-84	s	IC LH0084A
IC6	8-759-938-68	s	IC CXD1095Q
IC8	8-759-345-38	s	IC HD14538BP
IC9	8-759-202-74	s	IC TC74HC04P
IC10	8-759-917-46	s	IC 74F11PC
IC11	8-759-004-64	s	IC MC74HC126N
IC12	8-759-008-57	s	IC MC34051P
IC13	8-759-202-21	s	IC TC74HC32P
IC14	8-759-202-89	s	IC TC74HC139P
IC17	8-759-904-83	s	IC 74F32PC
IC18	8-759-916-20	s	IC SN74HC14N
IC101	8-759-145-58	s	IC UPC4558C
IC102	8-759-145-58	s	IC UPC4558C

(SY-141C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC103	8-759-240-53	s	IC TC4053BP
IC104	8-759-240-69	s	IC TC4069UBP
IC105	8-759-340-13	s	IC HD14013BP
IC301	8-759-240-69	s	IC TC4069UBP
IC302	8-759-202-14	s	IC TC74HC08P
IC303	8-759-345-38	s	IC HD14538BP
IC304	8-759-135-80	s	IC UPC358C
IC305	8-759-600-24	s	IC M54543L
IC306	8-759-600-24	s	IC M54543L
IC307	8-759-984-92	s	IC MB88551H-330M
IC311	8-759-240-69	s	IC TC4069UBP
IC315	8-759-145-58	s	IC UPC4558C
IC316	8-759-981-64	s	IC LM2903DQ
IC318	8-759-240-69	s	IC TC4069UBP
IC401	8-759-202-74	s	IC TC74HC04P
IC403	8-759-345-38	s	IC HD14538BP
IC404	8-759-916-29	s	IC SN74HC74N
IC405	8-759-908-23	s	IC MB88303
PS503	⚠1-532-679-00	s	LINK, IC 0.6A
PS504	⚠1-532-685-00	s	LINK, IC 0.8A
PS601	1-532-675-00	s	LINK, IC 1.5A
PS602	⚠1-532-769-21	s	FUSE 0.2A 125V
Q2	8-729-900-65	s	TRANSISTOR DTA144ES
Q3	8-729-900-89	s	TRANSISTOR DTC144ES
Q4	8-729-900-89	s	TRANSISTOR DTC144ES
Q5	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q301	8-729-177-42	s	TRANSISTOR 2SD774-3
Q302	8-729-119-78	s	TRANSISTOR 2SC2785
Q303	8-729-889-40	s	TRANSISTOR 2SD894
Q304	8-729-119-78	s	TRANSISTOR 2SC2785
Q305	8-729-119-78	s	TRANSISTOR 2SC2785
Q306	8-729-119-78	s	TRANSISTOR 2SC2785
Q307	8-729-119-78	s	TRANSISTOR 2SC2785
Q308	8-729-119-78	s	TRANSISTOR 2SC2785
Q309	8-729-900-89	s	TRANSISTOR DTC144ES
Q310	8-729-119-76	s	TRANSISTOR 2SA1175
Q311	8-729-900-89	s	TRANSISTOR DTC144ES
Q312	8-729-119-76	s	TRANSISTOR 2SA1175
Q313	8-729-900-89	s	TRANSISTOR DTC144ES
Q314	8-729-900-89	s	TRANSISTOR DTC144ES
Q315	8-729-119-78	s	TRANSISTOR 2SC2785
Q316	8-729-119-78	s	TRANSISTOR 2SC2785
Q317	8-729-900-89	s	TRANSISTOR DTC144ES
Q318	8-729-900-89	s	TRANSISTOR DTC144ES
Q319	8-729-900-89	s	TRANSISTOR DTC144ES
Q322	8-729-900-89	s	TRANSISTOR DTC144ES
Q325	8-729-900-89	s	TRANSISTOR DTC144ES
Q330	8-729-900-89	s	TRANSISTOR DTC144ES
Q332	8-729-900-89	s	TRANSISTOR DTC144ES
Q333	8-729-900-89	s	TRANSISTOR DTC144ES
Q334	8-729-900-89	s	TRANSISTOR DTC144ES
Q336	8-729-900-89	s	TRANSISTOR DTC144ES
Q337	8-729-900-89	s	TRANSISTOR DTC144ES
Q340	8-729-900-89	s	TRANSISTOR DTC144ES
Q341	8-729-811-11	s	TRANSISTOR 2SD1111
Q342	8-729-119-78	s	TRANSISTOR 2SC2785
Q401	8-729-900-89	s	TRANSISTOR DTC144ES

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141C BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q501	8-729-382-64	s	TRANSISTOR 2SC1826-G
R8	1-247-881-00	s	CARBON 120K 5% 1/4W
R11	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	⚠1-207-674-00	s	WIREWOUND 0.68 10% 4W
R320	1-247-883-00	s	CARBON 150K 5% 1/4W
R321	1-247-882-11	s	CARBON 130K 5% 1/4W
R325	1-247-891-00	s	CARBON 330K 5% 1/4W
R327	1-247-887-00	s	CARBON 220K 5% 1/4W
R332	1-247-891-00	s	CARBON 330K 5% 1/4W
R344	1-247-887-00	s	CARBON 220K 5% 1/4W
R347	1-247-887-00	s	CARBON 220K 5% 1/4W
R359	1-247-881-00	s	CARBON 120K 5% 1/4W
R360	1-247-881-00	s	CARBON 120K 5% 1/4W
R509	1-247-903-00	s	CARBON 1M 5% 1/4W
R510	1-247-895-00	s	CARBON 470K 5% 1/4W
R515	1-247-903-00	s	CARBON 1M 5% 1/4W
R516	1-247-895-00	s	CARBON 470K 5% 1/4W
R526	1-247-903-00	s	CARBON 1M 5% 1/4W
RB3	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB6	1-235-109-00	s	RESISTOR BLOCK 22Kx8
RB7	1-235-109-00	s	RESISTOR BLOCK 22Kx8
RB10	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB11	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RV1	1-230-497-11	s	RES, ADJ, METAL 22K
RV2	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV3	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV4	1-230-497-11	s	RES, ADJ, METAL 22K
X1	1-567-870-11	s	RESONATOR, CERAMIC 614KHz
X302	1-567-132-00	s	RESONATOR, CERAMIC 8.00MHz

TG-22 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
D1	8-719-905-56	s	LED EBR5504S, RED

UR-02

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-413-075-00	o	REGULATOR, SWITCHING UR-02
1pc	1-605-531-00	o	PRINTED CIRCUIT BOARD, M
C101	⚠1-130-711-00	s	FILM 0.22uF 20% 250V
C102	⚠1-162-599-12	s	CERAMIC 0.0047uF 20% 400V
C103	⚠1-162-599-12	s	CERAMIC 0.0047uF 20% 400V
C104	⚠1-162-599-12	s	CERAMIC 0.0047uF 20% 400V
C105	⚠1-162-599-12	s	CERAMIC 0.0047uF 20% 400V
C106	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C107	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C108	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C109	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C111	1-125-268-00	s	ELECT 47uF 20% 400V
C112	1-125-267-00	s	ELECT 300uF 20% 400V
C113	1-123-659-00	s	ELECT 4.7uF 20% 250V
C114	1-123-659-00	s	ELECT 4.7uF 20% 250V
C115	1-136-201-11	s	FILM 0.22uF 5% 400V
C201	1-161-913-00	s	CERAMIC 680PF 10% 500V
C204	1-161-913-00	s	CERAMIC 680PF 10% 500V
C206	1-162-200-31	s	CERAMIC 11PF 5% 50V
C207	1-162-200-31	s	CERAMIC 11PF 5% 50V
C208	1-162-200-31	s	CERAMIC 11PF 5% 50V
C209	1-123-663-00	s	ELECT 220uF 20% 6.3V
C210	1-124-887-00	s	ELECT 3300uF 20% 16V
C211	1-124-887-00	s	ELECT 3300uF 20% 16V
C212	1-124-887-00	s	ELECT 3300uF 20% 16V
C213	1-124-887-00	s	ELECT 3300uF 20% 16V
C214	1-162-200-31	s	CERAMIC 11PF 5% 50V
C215	1-161-925-00	s	CERAMIC 100PF 10% 500V
CN101	⚠1-560-437-00	s	CONNECTOR, VASE 4P, MALE "AC IN"
CN201	1-560-438-00	s	CONNECTOR, VASE 5P, MALE "OUT"
D101	8-719-108-08	s	DIODE AC03FGMAY
D102	8-719-911-55	s	DIODE U05G
D103	8-719-911-55	s	DIODE U05G
D104	8-719-911-55	s	DIODE U05G
D105	8-719-911-55	s	DIODE U05G
D201	8-719-908-00	s	DIODE ESAC33-02CS
D202	8-719-908-00	s	DIODE ESAC33-02CS
D203	8-719-908-00	s	DIODE ESAC33-02CS
D204	8-719-111-44	s	DIODE F114D
D205	8-719-110-41	s	DIODE RD15ES-B2
D206	8-719-200-02	s	DIODE 10E2
F101	⚠1-532-604-21	s	FUSE, THERMAL 130-DEG-C 3A
L101	⚠1-459-215-00	s	COIL
L102	⚠1-459-215-00	s	COIL
L201	1-421-398-12	s	COIL, CHOKE
L202	1-421-370-00	s	COIL, CHOKE
L203	1-421-431-00	s	COIL, CHOKE
Q101	1-807-799-11	s	TRANSISTOR 2SC3042
Q102	1-807-799-11	s	TRANSISTOR 2SC3042
Q201	8-729-331-53	s	TRANSISTOR 2SC2315
R101	⚠1-205-631-00	s	WIREWOUND 15 5% 5W
R103	⚠1-247-690-11	s	CARBON 15 5% 1/4W
R104	⚠1-247-690-11	s	CARBON 15 5% 1/4W
R106	1-247-704-11	s	CARBON 220 5% 1/4W

NOTE: Please see pages 16-39 thru 16-43 for the parts that
are not listed in the parts list.

(UR-02)

Ref. No. or Q'ty	Part No.	SP	Description
R107	⚠1-247-698-11	s	CARBON 68 5% 1/4W
R201	⚠1-205-641-00	s	WIREWOUND 330 5% 5W
R202	1-535-369-00	s	SHUNT 0.02 5% 2W
R203	1-247-705-11	s	CARBON 270 5% 1/4W
R204	⚠1-202-860-00	s	COMP 100 1/4W
R205	1-535-369-00	s	SHUNT 0.02 5% 2W
R206	⚠1-247-090-00	s	CARBON 20 5% 1/4W
R207	⚠1-532-605-00	s	LINK, IC 0.4A
R208	⚠1-202-860-00	s	COMP 100 1/4W
R209	⚠1-202-860-00	s	COMP 100 1/4W
T101	⚠1-447-052-00	s	TRANSFORMER, CONVERTER
T102	⚠1-421-468-00	s	TRANSFORMER, LINE FILTER
T103	⚠1-447-106-00	s	TRANSFORMER, DRIVE
T104	⚠1-447-053-00	s	TRANSFORMER, CONVERTER
T201	1-421-467-00	s	COIL, CHOKE
1pc	1-605-532-00	o	PRINTED CIRCUIT BOARD, S
C002	1-131-361-00	s	TANTALUM 2.2uF 10% 20V
C003	1-126-101-11	s	ELECT 100uF 20% 16V
D001	8-719-900-95	s	DIODE V09G
D002	8-719-900-95	s	DIODE V09G
D003	8-719-109-85	s	DIODE RD5.1ES-B2
D004	8-719-911-19	s	DIODE 1SS119
D005	8-719-911-19	s	DIODE 1SS119
D006	8-719-911-19	s	DIODE 1SS119
D007	8-719-911-19	s	DIODE 1SS119
D008	8-719-109-75	s	DIODE RD4.3ES-B2
Q001	8-729-100-12	s	TRANSISTOR 2SC2001-L
Q002	8-729-105-97	s	TRANSISTOR 2SA1156-2K
Q001	8-729-175-22	s	TRANSISTOR 2SC2752
R001	⚠1-246-545-00	s	CARBON 1M 1% 1/4W
R002	⚠1-246-545-00	s	CARBON 1M 1% 1/4W
R003	⚠1-247-704-11	s	CARBON 220 5% 1/4W
R004	⚠1-247-704-11	s	CARBON 220 5% 1/4W
R005	⚠1-247-698-11	s	CARBON 68 5% 1/4W
R006	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R007	⚠1-246-545-00	s	CARBON 1M 1% 1/4W
R008	1-247-708-11	s	CARBON 470 5% 1/4W
R009	1-247-721-11	s	CARBON 4.7K 5% 1/4W
1pc	1-605-679-00	o	PRINTED CIRCUIT BOARD, C
C301	1-130-652-00	s	FILM 0.0036uF 2% 100V
C303	1-123-332-00	s	ELECT 47uF 20% 25V
C304	1-123-356-00	s	ELECT 10uF 20% 50V
C305	1-136-159-00	s	FILM 0.033uF 5% 50V
C306	1-162-200-31	s	CERAMIC 11PF 5% 50V
D301	8-719-200-02	s	DIODE 10E2
D302	8-719-110-41	s	DIODE RD15ES-B2
D303	8-719-911-19	s	DIODE 1SS119
IC301	8-759-904-94	s	IC TL494CN
Q301	8-729-173-36	s	TRANSISTOR 2SA733-Q
R301	1-247-719-11	s	CARBON 3.3K 5% 1/4W
R302	⚠1-247-696-11	s	CARBON 47 5% 1/4W
R303	1-247-700-11	s	CARBON 100 5% 1/4W
R304	1-247-720-11	s	CARBON 3.9K 5% 1/4W
	1-247-146-00	s	CARBON 4.3K 5% 1/4W
	1-247-721-11	s	CARBON 4.7K 5% 1/4W
	1-247-148-00	s	CARBON 5.1K 5% 1/4W
	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R305	1-249-460-11	s	CARBON 15K 5% 1/4W
R306	1-247-725-11	s	CARBON 10K 5% 1/4W
R307	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R308	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R309	1-247-132-00	s	CARBON 1.1K 5% 1/4W
R310	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R311	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R312	1-249-469-11	s	CARBON 100K 5% 1/4W
R313	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R314	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R315	1-246-539-00	s	CARBON 560K 5% 1/4W
RV301	1-226-826-00	s	RES, ADJ, METAL 300

VR-80 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80
ME1001A	1-520-393-00	s	METER, AUDIO
ME1001B	1-520-393-00	s	METER, AUDIO
RV1	1-238-483-11	s	RES, VAR, CARBON 5K "AUDIO CH-1 REC"
RV2	1-238-483-11	s	RES, VAR, CARBON 5K "AUDIO CH-2 REC"
RV3	1-237-713-11	s	RES, VAR, CARBON 100K "TRACKING CONTROL"
S1021	1-516-961-00	s	SWITCH, LEVER SLIDE "AUDIO LIMITER"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6709-682-A	s	HEAD DRUM ASS'Y, DUH-46B-R
1pc	A-6709-637-A	s	UPPER DRUM ASS'Y, DUR-46-R
1pc	⚠1-413-075-00	s	REGULATOR, SWITCHING UR-02
1pc	⚠1-532-237-00	s	FUSE 3.15A 250V
2pcs	⚠1-532-286-00	s	FUSE 2.5A 250V
CN1001	⚠1-560-222-11	s	INLET, AC 3P, MALE "AC IN"
CN1002	1-561-577-21	s	SOCKET, DIP 8P, MALE "MONITOR TV"
CN1003	1-507-467-00	s	JACK, PIN 1P, FEMALE "MONITOR AUDIO"
CN1004	1-562-227-21	s	CONNECTOR, BNC, MALE "MONITOR VIDEO"
CN1005	1-562-227-21	s	CONNECTOR, BNC, MALE "TIME CODE OUT"
CN1006	1-562-227-21	s	CONNECTOR, BNC, MALE "TIME CODE IN"
CN1007	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO IN 1"
CN1008	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO IN 2"
CN1009	1-562-227-21	s	CONNECTOR, BNC, MALE "SYNC IN"
CN1010	1-562-227-21	s	CONNECTOR, BNC, MALE "RF (OFF TAPE)"
CN1011	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO OUT"
CN1013	1-561-045-00	s	CONNECTOR, RF 7P, MALE "DUB OUT"
CN1014	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P, MALE "DUB IN"
CN1015	1-563-029-21	s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-1/L"
CN1016	1-563-029-21	s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-2/R"
CN1017	1-563-030-21	s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-1/L"
CN1018	1-563-030-21	s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-2/R"
CN1019	1-507-797-21	s	JACK, PHONE, STEREO "MICROPHONES CH-1/CH-2"
CN1020	1-507-854-00	s	JACK, PHONE "HEAD PHONES"
H1001	8-825-514-20	s	HEAD, CTL PP170-58 "CTL PB"
H1002	8-825-544-20	s	HEAD, ERASE EF245-58 "FULL ERASE"
H1003	8-825-578-22	s	HEAD, ACE EPS264-5803 "AUDIO/CTL/ERASE"
H1004	8-825-771-31	s	HEAD, TIME CODE PP295-58 "TIME CODE"
M1001	8-835-258-02	s	MOTOR, DC BHF-1915B "CAPSTAN"
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A "THREADING"
M1005	8-835-179-01	s	MOTOR, DC MCB2B15 "CASSETTE COMPARTNENT"
M1006	8-835-178-01	s	MOTOR, DC FN30-T26N1E "REEL"

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
ME1001	1-520-393-00	s	METER, AUDIO "AUDIO LEVEL CH-1"
ME1002	1-520-393-00	s	METER, AUDIO "AUDIO LEVEL CH-2"
PM1001	1-454-415-11	s	SOLENOID "TAKE-UP IDLER"
PM1002	1-454-417-41	s	SOLENOID "TAKE-UP BRAKE"
PM1004	1-454-415-11	s	SOLENOID "SUPPLY IDLER"
PM1005	1-454-417-41	s	SOLENOID "SUPPLY BRAKE"
PM1006	1-454-446-11	s	SOLENOID "SKEW"
PM1007	1-454-417-41	s	SOLENOID "SEARCH"
PM1008	1-454-416-31	s	SOLENOID "PINCH"
S1001	⚠1-570-117-41	s	SWITCH, ROCKER "POWER"
	1-561-427-00	s	HOUSING, 3P
S1002	1-571-083-21	s	SWITCH, SLIDE "75 ohm"
	1-215-394-00	s	METAL 75 1% 1/6W
S1003	1-554-423-00	s	SWITCH, SLIDE "COLOR LOCK"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

16-4. PACKING MATERIAL AND ACCESSORIES

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-556-760-11	s	CORD, POWER 3P
1pc	3-672-720-00	o	BAG, PROTECTION
1pc	3-733-670-01	o	CUSHION (UPPER)
1pc	3-733-671-01	o	CUSHION (LOWER)
1pc	3-733-674-01	o	INDIVIDUAL CARTON
1pc	⚠3-786-851-12	s	MANUAL, INSTRUCTION

16-5. FIXTURE (OPTION)

OPTIONAL FIXTURE

Part No.	SP	Description
J-6001-820-A	o	DRUM ECCENTRICITY GAUGE (3)
J-6001-830-A	o	DRUM ECCENTRICITY GAUGE (2)
J-6001-840-A	o	DRUM ECCENTRICITY GAUGE (1)
J-6001-930-A	o	DRUM ECCENTRICITY GAUGE (4)
J-6009-830-A	o	FLATNESS PLATE
J-6026-240-A	o	ADJUSTMENT DRIVER
J-6130-010-A	o	REEL TABLE HEIGHT CHECK BASE TOOL
J-6130-020-A	o	REEL TABLE HEIGHT CHECK TOOL
J-6153-020-A	o	DIHEDRAL ADJUSTMENT DRIVER
J-6150-140-A	o	ECCENTRICITY SCREWDRIVER 6 MM DIA.
J-6153-580-A	o	PINCH LEVER ADJUSTMENT TOOL
Y-2031-001-0	o	CLEANING FLUID
2-034-697-00	o	CLEANING PIECE
3-702-216-01	o	BACK TENSION ADJUSTMENT TOOL
7-661-018-01	o	SONY OIL
7-732-050-20	o	TENSION SCALE (50g full scale)
7-732-050-30	o	TENSION SCALE (100g full scale)
7-732-050-40	o	TENSION SCALE (200g full scale)
7-732-050-50	o	TENSION SCALE (500g full scale)
8-899-999-53	o	TORQUE MEASUREMENT TAPE
8-960-020-62	o	ALIGNMENT TAPE RR5-2SB PAL
8-960-035-61	o	ALIGNMENT TAPE RR5-2SC PAL
8-960-036-02	o	ALIGNMENT TAPE RR2-1SD PAL
8-960-036-80	o	ALIGNMENT TAPE RR5-1SD PAL
9-911-053-00	o	THICKNESS GAUGE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.